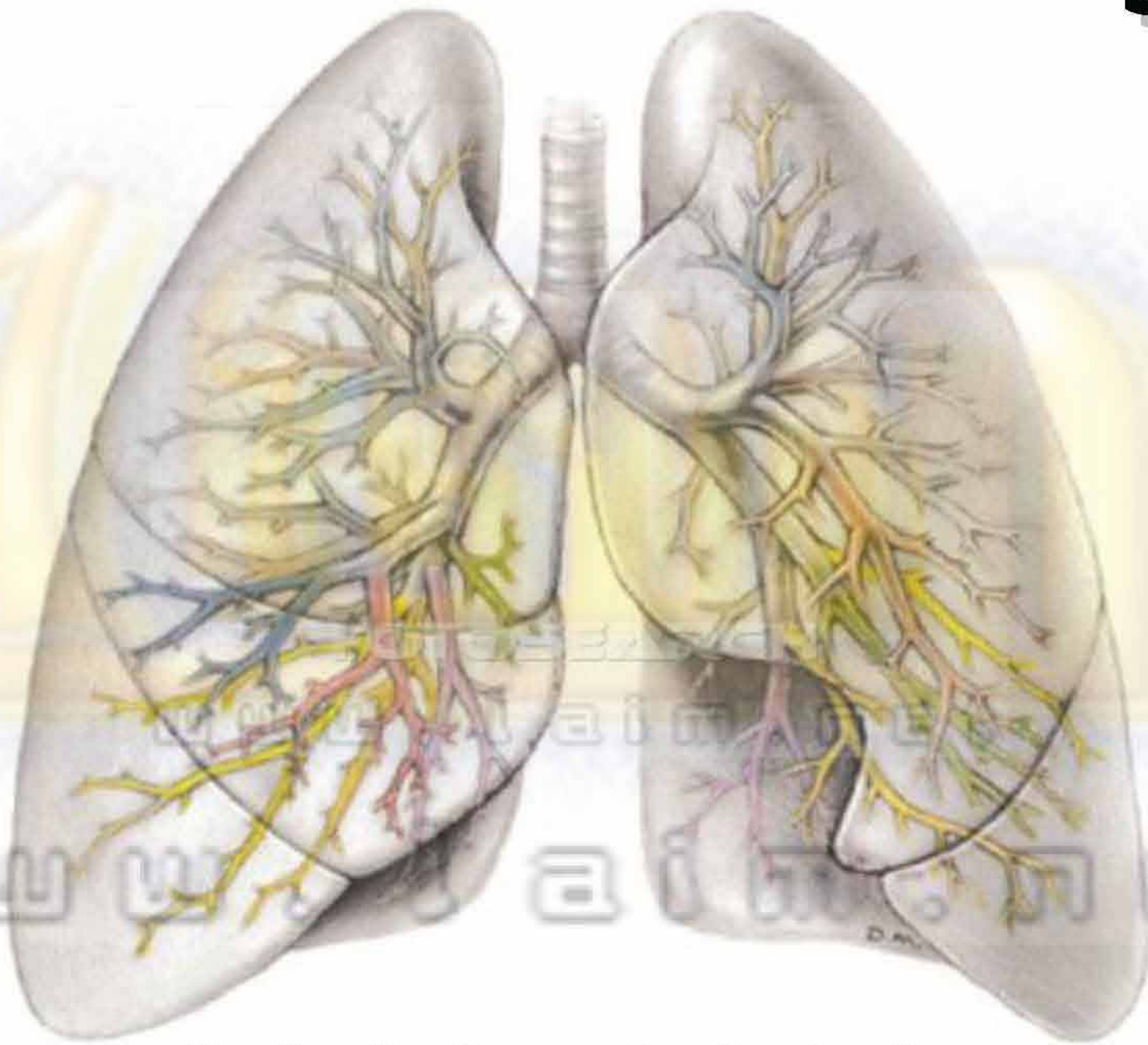


respiratory



2 0 0 9 - 2 0 1 0

Index:

- **CHRONIC BRONCHITIS.**
- **EMPHYSEMA.**
- **BRONCHIAL ASTHMA.**
- **PNEUMONIA - LUNG ABSCESS. - BRONCHIECTASIS.**
- **PL. EFFUSION - FIBROSIS - COLLAPSE - PNEUMO-THX.**
- **BRONCHOGENIC CARCINOMA.**
- **IPF - CYSTIC FIBROSIS.**
- **SARCOIDOSIS - TB.**

CHRONIC BRONCHITIS

CHRONIC INFLAM. from the start of BT (not infection)

⇒ chronic productive cough

⇒ for 3 ms for at least 2 successive yrs.

e exclusion of other diseases eg. Bronchiectasis.

PULMONARY EMPHYSEMA

3 Ds:

- 1) **Permanent Distention** of air spaces
- 2) **Distal** to terminal bronchiole.
- 3) e **Destruction** of their walls.

BRONCHIAL ASTHMA

Chronic inflame. of BT ccc. by
Hyper-responsiveness of BT
to **multiple stimuli**

recurrent episodic attacks

⇒ BS "Wheezy chest" + Dyspnea

⇒ Relieved spont. or e ttt

CAUSES

Chronic irritation



- SMOKING. FUMES.
- DUST. AIR POLLUTION. (SO₂)

INFECTION IS AN EXACERBATING FACTORS

(H. INFLUENZA & PNEUMO-COCCI)

(sputum + fever)

COPD = Ch. Bronchitis + Emphysema

(↓ FEV < 80% of the N. value)

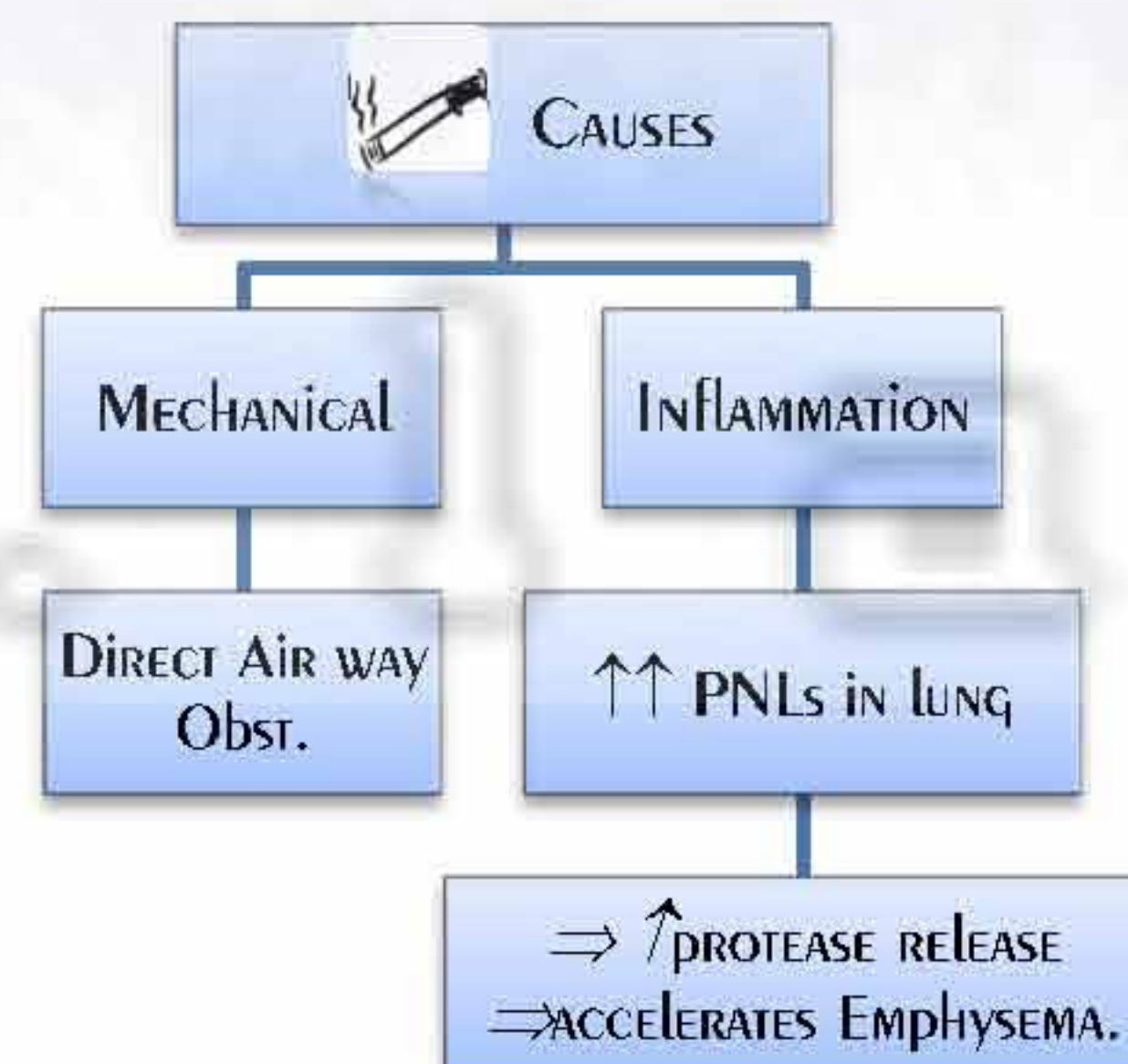
1) **CHRONIC BRONCHITIS** → OBST. EMPHYSEMA.

2) **SENILE** → ATROPHIC EMPHYSEMA. "ASYMPTOMATIC"

3) **COMPENSATORY hyper-inflation:**

- **BRONCHIECTASIS** → UPPER LUNG EMPHYSEMA.
- **UNI-LATERAL LUNG D.** → CONTRA-LAT. EMPHYSEMA.

4) **CONGENITAL** → α₁ ANTITRYPSIN DEF. (ANTI-PROTEASES)
EMPHYSEMA AT 40 YS.
± LIVER CIRRHOSIS.



EXTRINSIC (ATOPIC)

INTRINSIC (NON-ATOPIC)

1) onset	EARLY	LATE AGE > 40 YEARS
2) course	EPISODIC / FREE IN BET.	PERSISTENT / NOT FREE BET.
3) FH	+ VE ATOPY / SEASONAL	-VE
4) Ig	↑↑ IgE + Ag → MAST CELL → RELEASE MEDIATORS → BS	↑↑ IgA. VIRAL URTI
5) prognosis	GOOD DT (NATURAL DESENS.)	NOT GOOD.
Types of Ag	• POLLENS - ANIMAL DANDER • DUST - MITES	• DRUGS: PENICILLIN, CS • FOOD ALLERGY.

OTHER TYPES OF ASTHMA

1) ASPIRIN INDUCED	(-) PG SYNTH. → ↑↑ Lts (ALLERGIC PT. EA, RHINITIS & N. POLYPS)
2) EXERCISE INDUCED	HYPER-VENT. → COOLING & DRYING OF BRONCHIAL M.
3) OCCUPATIONAL	E.G. BYSSINOSIS, SPRAY PAINTING, BAKERS, VARNISHES.
4) ASPERGILLOSIS	→ ASPERGILLUS AB. IN SERUM.
5) CHEST INFECTION (VIRAL = RSV).	6) STRESS INDUCED.

Asthmatic Bronchitis = (COPD + BS) = old age smoker.

➤ Cl./P

♂ 40 ys ... +ve History of

1) **Cough** ⇒ **productive:**

non-infected

- mucoid
- ↓ amount
- Whitish
- ↑ at morning.

Infected → RF

- muc-purulent... fever
- ↑ amount
- yellowish
- Day & night

2) **Dyspnea** IF EMPHYSEMA OR BS ON TOP.

(+ve History of COPD

(IF NO COPD + YOUNG AGE + LIVER CIRRHOSIS) .. α₁-ANTITRYPSIN DEF.??

1) **No Cough.** (except e Ch. Bronchitis)

2) **Dyspnea.**

3) ± **Chronic bronchitis.** (COPD)

+ve History of inhalers

RECURRENT ATTACKS OF

- 1) **Cough.**
- 2) **Dyspnea.**
- 3) **Wheezy chest.**

IN BETWEEN ATTACKS

FREE &
EPISODIC

PERSISTENT E
EXACERBATION

EXTRINSIC ASTHMA

INTRINSIC ASTHMA

➤ GENERAL SIGNS

2P:

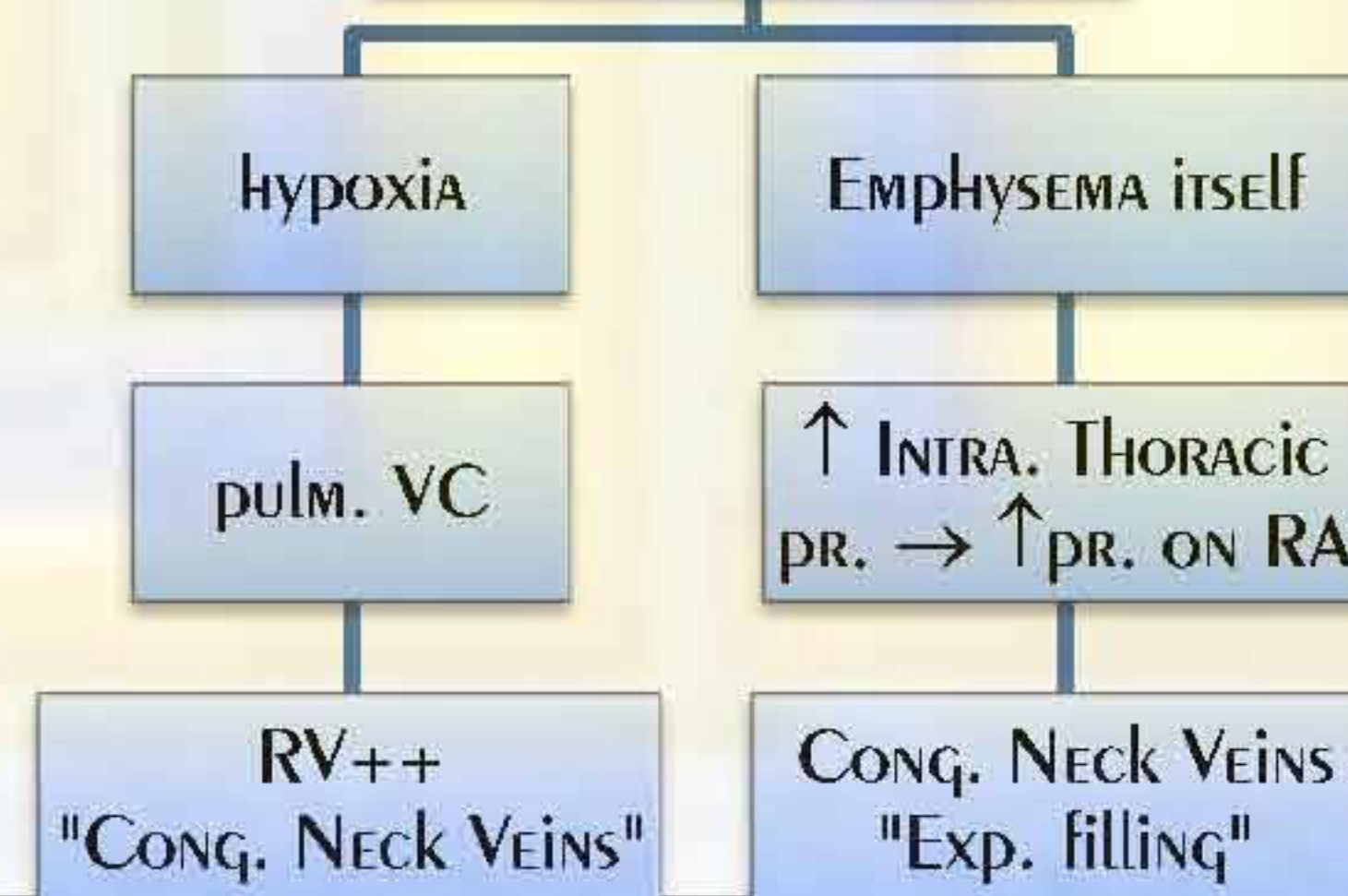
- 1) **P uffiness of eye lids** DT CHRONIC COUGH.
- 2) **P ulse** → BOUNDING. (DT CO₂ RETENTION → VD)

4C:

- 1) **C ongested Neck veins** e EXPIRATORY FILLING
- 2) **C ore-pulmonale** + EPI-GASTRIC PULS. (RT. V++)
- 3) **C yanosis** if RF.
- 4) ± **C lubbing** v. RARE IF BRONCHIECTASIS OR BR. CARCINOMA.

✓ **4C as Chronic bronchitis.**

CONGESTED NECK VEINS IN
COPD IS DUE TO



➤ CHEST SIGNS

- 1) **Inspection** ⇒ SYMMETRICAL CHEST, ↓ MOV. BILATERAL. ↑ A-P DIAMETER E EMPHYSEMA.
- 2) **palpitation** ⇒ TVF equal on both sides. (↓ e Emphysema) ± palpable Rhonchi
- 3) **percussion** ⇒ Hyper-resonance if EMPHYSEMA ⇒
- 4) **Auscultation** ⇒

HARSH VESICULAR BREATHING

↓
(AIR OBST. → PASSIVE EXP. TO
ACTIVE → PROLONGED EXP.)

± **RHONCI**

dt ... BS
GENERALIZED / SIBILANT /
PERSISTENT AFTER COUGH

dt (secretions)
العكس

HEAVY PERCUSSION

ENCROACHMENT ON THE
BARE AREA OF THE HEART

LIGHT PERCUSSION

↓
LOWER BORDER OF **LUNG**
IS BELOW 6TH RIB MCL.

± **CREPITATIONS**

DT SECRETIONS

↓
COARSE NON-CONSONATING

➤ INVEST.

1) **X-RAY** → **HYPER-TRANSLUCENCY**.

- ↑↑ BYM. (HYPEREMIA OR MUCOSAL CONG.)
- **DEPRESSED COPULA OF DIAPH.**

2) **ECG** → RV ++ = RT. AXIS DEVIATION.

3) **BLOOD GASSES** → VENTILATION DEFECT ⇒ $(\downarrow O_2 - \uparrow CO_2)$
⇒ **TYPE II RF.**

4) **RFT** → OBST. HYPO-VENTILATION DEFECT. ($\downarrow$ FEV)

1) ✓ + **RIBBON SHAPED HEART.**

2) ✓ + **LOW-VOLATAGE.**

3) ✓ RF	PURE EMPH. ⇒ TYPE I
	COPD ⇒ TYPE II

4) $\downarrow \alpha_1$ **ANTI-TRYPsin LEVEL.**

1) **X-RAY** → **ONLY TO EXCLUDE PNEUMO-THORAX (SUDDEN CHEST PAIN)**

2) **BLOOD GASES** (DURING ATTACKS)

- **MILD** → HYPER-VENTILATION → $\downarrow CO_2$
- **SEVER** → HYPO-VENTILATION → CO_2 (NORMAL OR $\uparrow\uparrow$)
(INDICATION OF VENTILATOR)

3) **BLOOD:**

- $\uparrow$ IGE → EXTRINSIC
 - $\uparrow$ IGA → INTRINSIC
- EOSINOPHILIA
+VE ASPERGILLUS AB

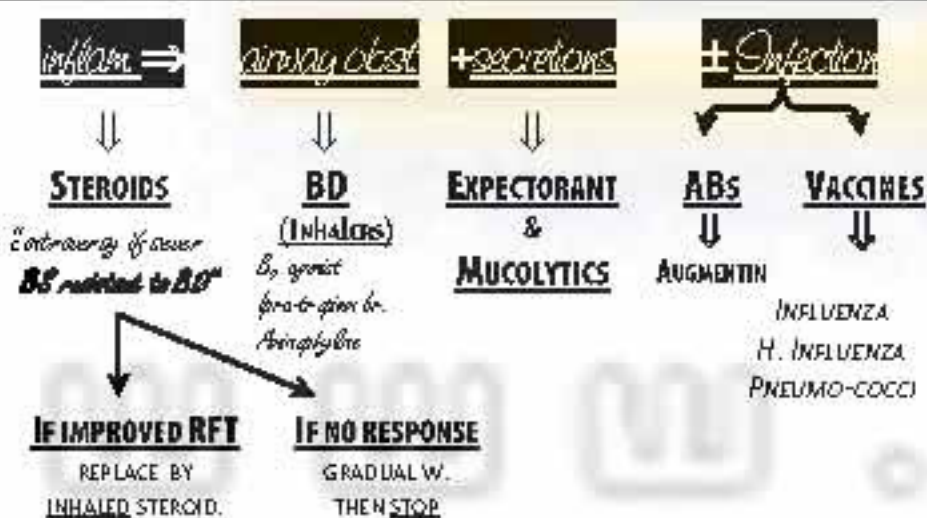
4) **SPUTUM:** → CHURCHMAN'S SPIRALS = MUCCID CASTS IN SMALL AIRWAY.
→ CHARCOT LADEN CRYSTALS = DEGENERATED EOSINOPHILS.

5) **SKIN** HYPER-SENSITIVITY TEST.

6) **CHALLENGE TESTS FOR COUGH VARIANT ASTHMA**

- **METACHOLINE, HISTAMINE TEST** → BS AT LOWER DOSE
 - **COLD AIR CHALLENGE**
- 8) **RFT**

➤ TREATMENT



O₂ THERAPY (DOMICILIARY) + LUNG TRANSPLANT.

TTT. OF EXACERBATION IN COPD: add **DIURETICS** dr **Cor-pulmonale** to $\downarrow$ P++ caused by hypoxia (VC + 2^m poly-cythemia)

- 1) **NON-SPECIFIC TREATMENT.**
- 2) **SYMPTOMATIC TTT.**
- 3) α_1 **ANTITRYPsin INJECTION.**

1) **SEE LATER**

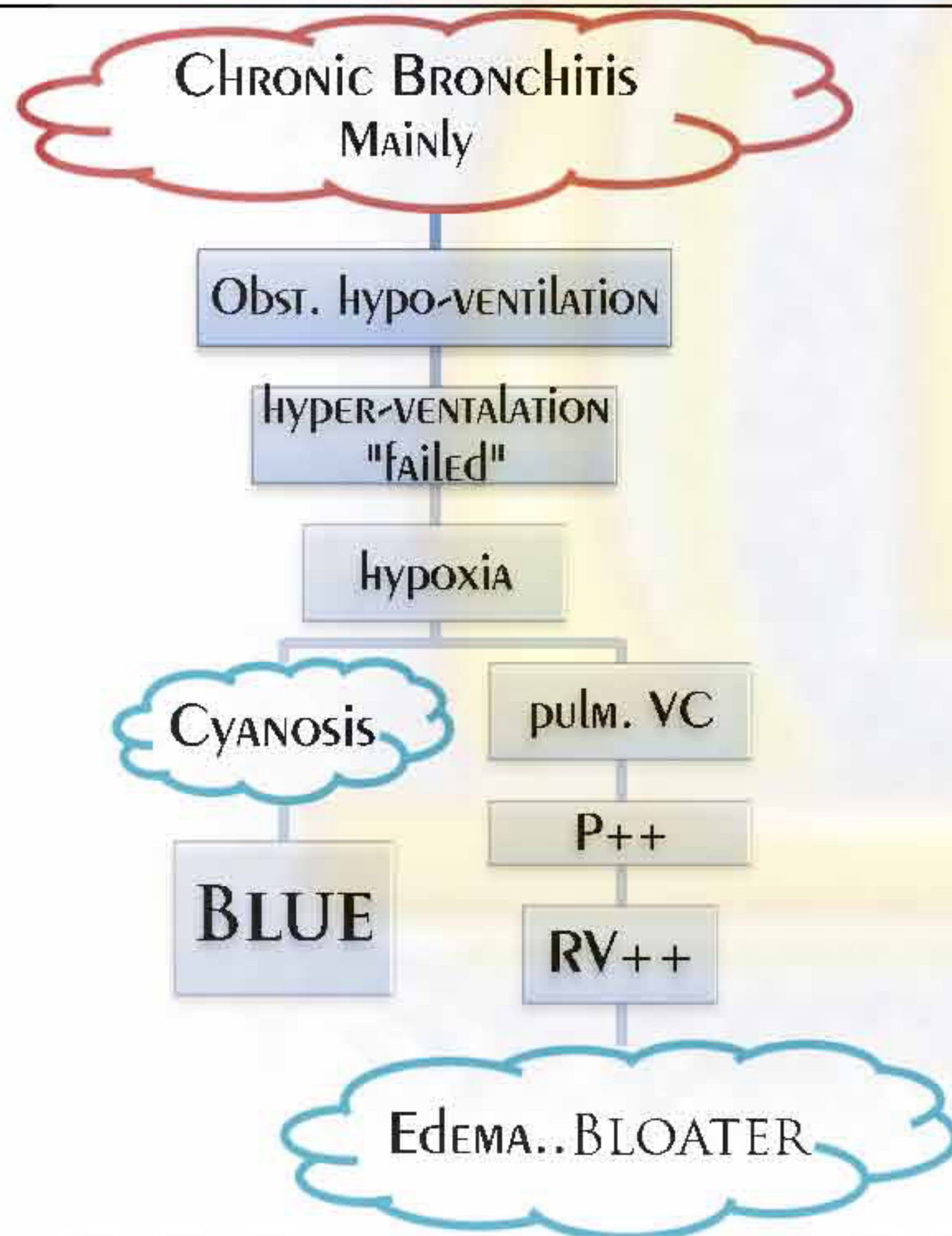
COMPLICATIONS OF COPD

- **RF TYPE II.**
- **2^{RY} POLYCYTHAEMIA.**
- **RVF.**
- **PEPTIC ULCER** *DT SMOKING / CS / HYPOXIA.*
- **P++**
- **BRONCHIECTASIS.**
- **BRONCHIAL CARCINOMA.**

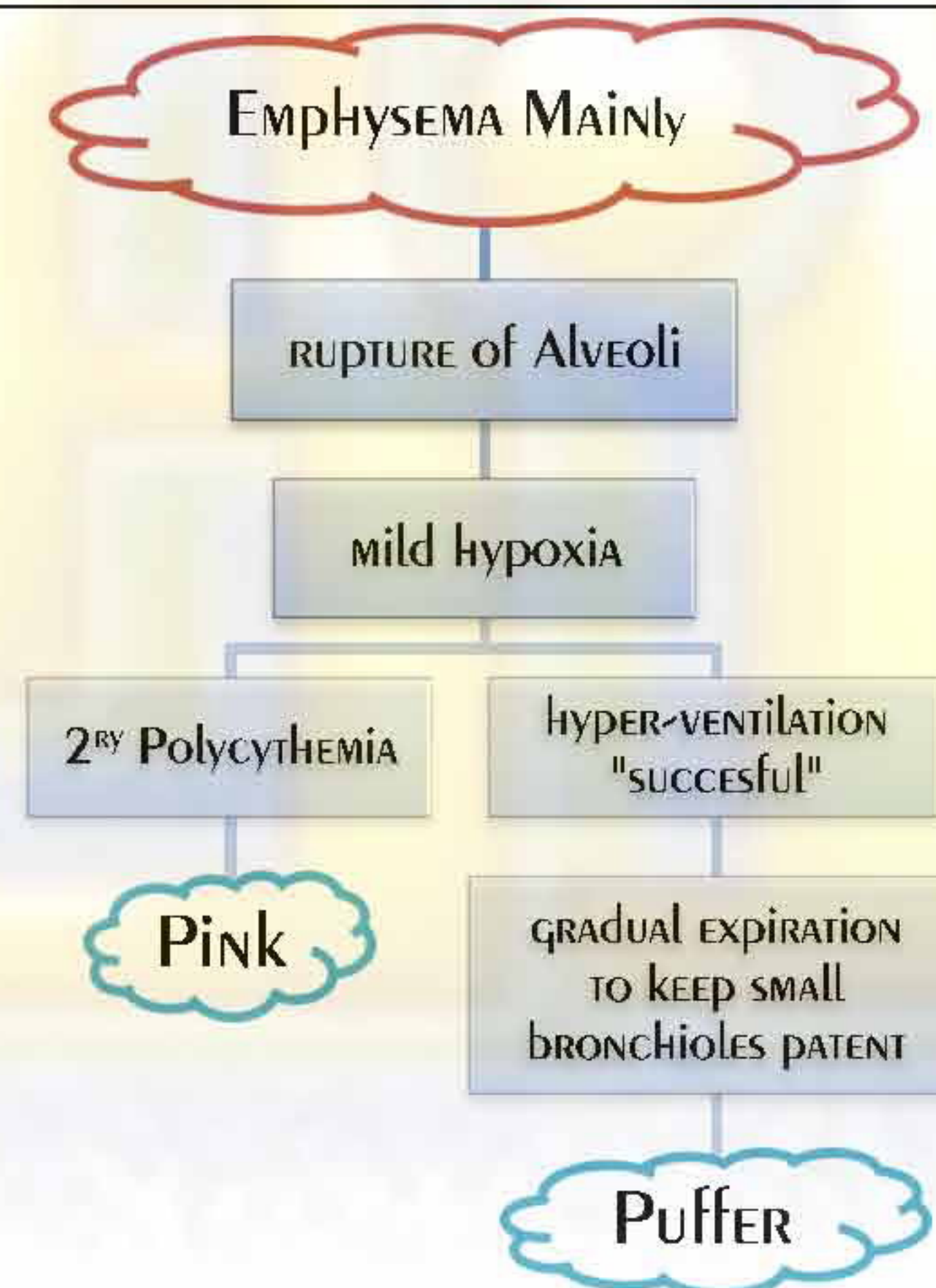
COMPLICATIONS OF BRONCHIAL ASTHMA

- **ACUTE SEVERE ASTHMA.**
- **SPONT. PNEUMO-THORAX.** *(DT AIR-TRAPPING)*
- **RF.**
- **S/E OF DRUGS: EG. ARRHYTHMIAS.**

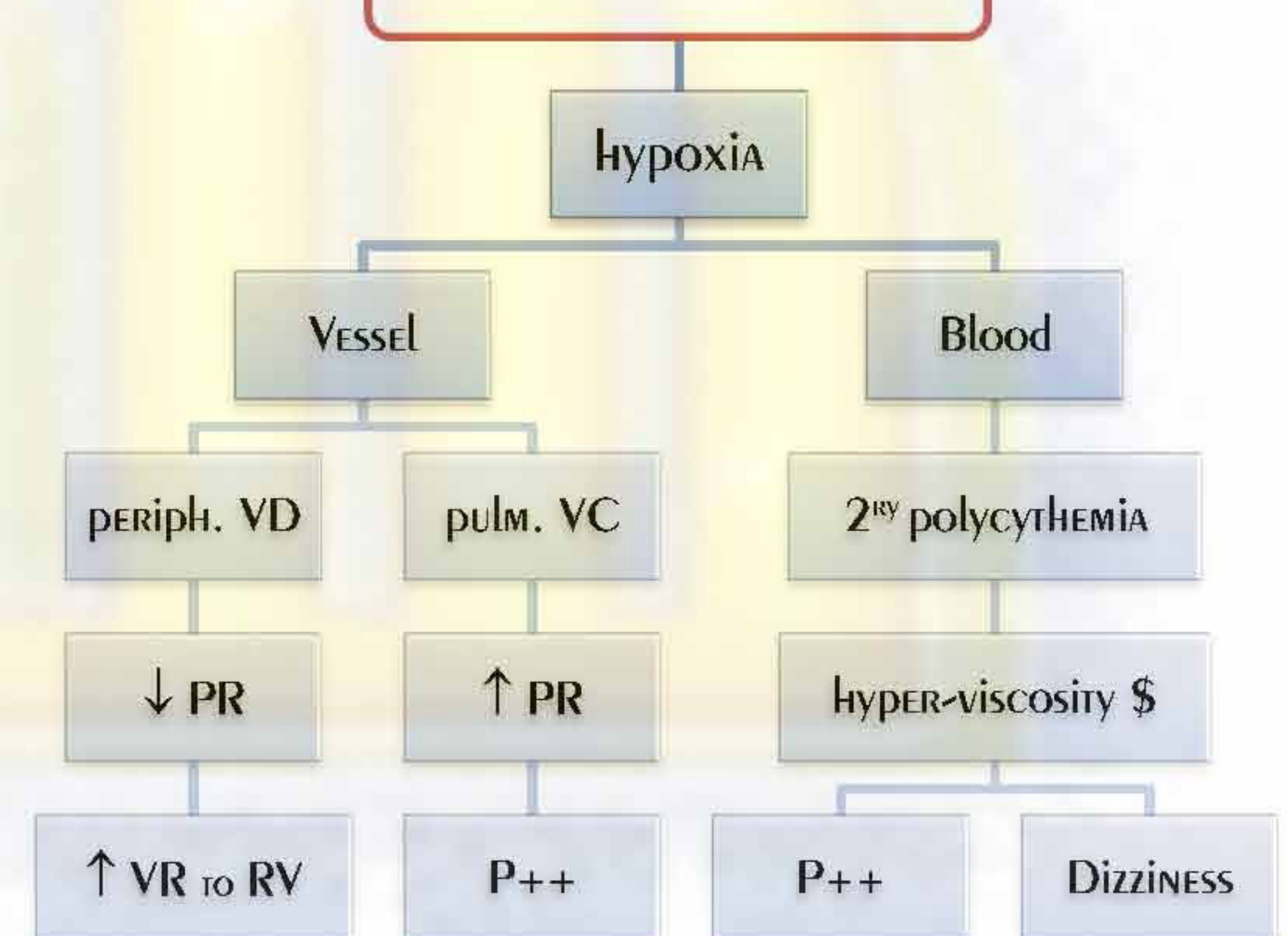
BLUE-BLOATER



PINK-PUFFER



CAUSES of P++ in COPD

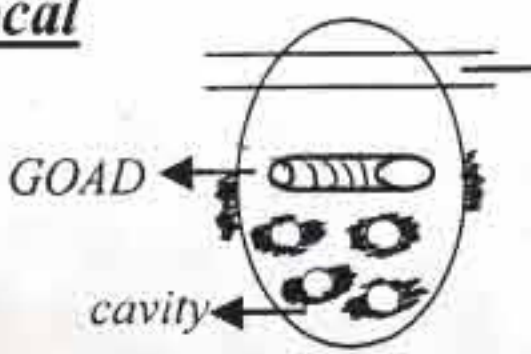


S I G N S O F S E V E R I T Y O F C O P D :

- 1) **↑ A-P DIAMETER.**
- 2) **ACCESORY MS. "STERNO-MASTOID MS."**
- 3) **+VE LITTIN SIGN = IC SUCTION DURING INSPIRATION.**
- 4) **EXPIRATORY FILLING OF NECK VEINS.**

PNEUMONIA	LUNG ABSCESS	BRONCHIECTASIS						
Inflammatory consolidation of lung t dt intra-alveolar exudates = non-functioning alveoli.	necrotizing supp. inflam. of the lung parenchyma ⇒ Lung Cavity.	chronic necrotizing supp. inflammation of the bronchi e permanent dilatation of these airway passages.						
➤ CAUSES								
PDF: 1) FOLLOW INFLUENZA OR PARA-INF. 2) BRONCHIECTASIS & COPD. 3) SMOKING. ALCOHOL EXCESS. 4) IV DRUG ABUSE. IMMUNO-SUPP. 5) ASPIRATION E ↓ CONSCIOUSNESS. 6) HOSPITALIZED PT. CLASSIFICATION Pathological BRONCHOPNEUMONIA LOBAR PNEUMONIA Clinical 1) CAP (AT HOME) 2) NOSOCOMIAL. 3) IMMUNE-COMPROMISED.	1^{RY} (NORMAL LUNG + ASPIRATION) ⇓ MOSTLY RT. & BASAL LUNG LESION 2^{RY} LUNG DISEASE → PNEUMONIA. → INFECTED CYST. → BR. CARCINOMA. SUB-DIAPHRAGMATIC → AMOEBIC ABSCESS. MEDIASTINAL & THORACIC WALL D. 1) LOSS OF CONSC. (EPILEPSY) 2) GA. (POST-OP.) 3) GERD – ACHALASIA. 4) VOMITING.	1) Obstruction → stasis → infection (↑ intra-bronchial pr.) 2) Infection → secretion → obstruction (destroy bronchial wall) <table> <tr> <th>CONGENITAL</th><th colspan="2">ACQUIRED</th></tr> <tr> <td> KARTAGNER'S \$ Immotile cilia \$ • DEXTROCARDIA (mirrored mirror) • BRONCHIECTASIS • FRONTAL SINUSITIS OR ABSENT • INFERTILITY (SPERMIS) CONG. IMMUNE DEF. (RECURRENT INF.) CONG. POLYCYSTIC LUNG </td><td> Obstruction COMPLETE ↓ LUNG COLLAPSE PARTIAL (COPD) EMPHYSEMA BRONCHIECTASIS </td><td> Infection ↓ LUNG ABSCESS, PNEUMONIA, TB (BRONCHO-STENOSIS) </td></tr> </table> ➤ SITES BILATERAL & BASAL "COPD" AREAS OF POOR DRAINAGE APICAL ON TOP OF "TB - FRIEDLANDER KLEBSIELLA PN." (HAEMOPTYSIS + ↓↓ SPUTUM) (BRONCHIECTASIS SICCA HAEMORRAGICA) RT. MIDDLE LOBE \$ ⇒ INFECTION ⇒ LNs ++ ⇒ COMPRESS RT. MIDDLE BR. (OBST...) ⇒ BRONCHIECTASIS	CONGENITAL	ACQUIRED		KARTAGNER'S \$ Immotile cilia \$ • DEXTROCARDIA (mirrored mirror) • BRONCHIECTASIS • FRONTAL SINUSITIS OR ABSENT • INFERTILITY (SPERMIS) CONG. IMMUNE DEF. (RECURRENT INF.) CONG. POLYCYSTIC LUNG	Obstruction COMPLETE ↓ LUNG COLLAPSE PARTIAL (COPD) EMPHYSEMA BRONCHIECTASIS	Infection ↓ LUNG ABSCESS, PNEUMONIA, TB (BRONCHO-STENOSIS)
CONGENITAL	ACQUIRED							
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➤ CL./P								
• F A H M. (Toxemia) "rare in Acute bronchitis" • Dyspnea. • Chest pain. "pleurisy" • cough & Expectoration. signs: • lobar → in onle lobe. • BP → bi-lateral patchy in lower lobes.	pneumonic Stage • F A H M. (Toxemia) • Dyspnea. • Chest pain. "pleurisy" • cough & Expectoration ⇒ muc. purulent ↑↑ amount. ⇒ Bad odor: "due to Anaerobes" ⇒ Related to posture (↑ on lying on healthy side dt drainage of the bronchi) Acute stage Fever 40 & Rigors Chronic stage: Toxemia & Clubbing + Retention \$ + Retraction (dt fibrosis)	1) F A H M. (Toxemia) + Clubbing Obstructive element -Wheezy chest... Rhonchi but not in attacks as in BA. suppurative element cough & Expectoration → ↑↑ AMOUNT → Bad odor. → Related to posture. (↑ on leaning forward) HAEMOPTYSIS (dt mucosal ulceration)						

➤ CHEST SIGNS

	PNEUMONIA	LUNG ABSCESS	BRONCHIECTASIS	
			Upper zone (HYPER-INFLATION)	lower zone (CAVITATIONS)
1) Inspection 2) palpation 3) percussion 4) Auscultation <i>"CAVITATIONS"</i>	↓ MOV., SYMMETRICAL SHAPE. ↑ TVF IN AFFECTED AREA. - DULLNESS. 2B ⇒ BR. BREATHING – BRONCHOPHONY. WHISPERING 3C ⇒ COARSE CONSONATING CREPITATIONS.	✓ <u>Local</u> ✓ ✓ ✓  Compensatory emphysema	✓ ↓ TVF + PALPABLE RHONCHI HYPER-RESONANCE. harsh vesicular br. Rhonchi dt obstruction	✓ ↑ TVF DULLNESS Bi-lateral Basal 2B + 3C BRONCHIECTASIS fine CREPITATIONS PVC hyper-vol. PE

➤ INVEST.

1) X-RAY → DIAGNOSIS & PROGNOSIS. (LOBAR / BP) 2) BLOOD PICTURE → ↑ ESR - CRP - ↑ TLC 3) C & S FOR SPUTUM. 4) SEROLOGY FOR ORGANISMS.	1) X-RAY → CAVITY WITH FLUID LEVEL. 2) C & S FOR SPUTUM. (AEROBE & ANAEROBES) 3) CT SCAN CHEST. 4) BRONCHOSCOPY ONLY IF NO RESPONSE TO TTT. <i>(To exclude Malignancy or FB removal).</i>	1) X-RAY → HONEY COMB APP. (LATE FINDING) 2) C & S FOR SPUTUM. 3) CT SCAN BEST. (EARLY DIAGNOSIS). 4) BLOOD PICTURE → ↑ ESR – CRP- TLC.
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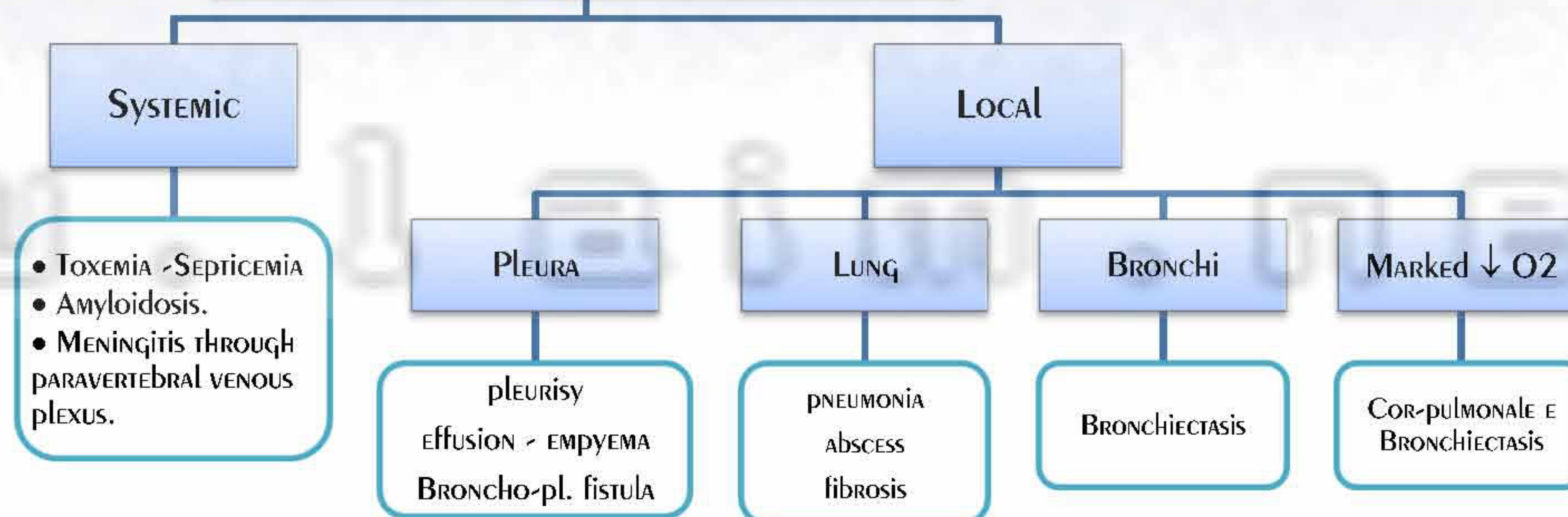
➤ TREATMENT

1) ABS <i>(start IV till fever subsides → Oral for 2 wks 500mg/12hr)</i> <table border="1" style="width: 100%; border-collapse: collapse; margin-top: 5px;"> <tr> <td style="padding: 2px;">G +ve</td><td style="padding: 2px;">UNASYN</td><td style="padding: 2px;">(AMPICILLIN / SULBACTAM)</td></tr> <tr> <td style="padding: 2px;">G-ve</td><td style="padding: 2px;">AUGMENTIN</td><td style="padding: 2px;">(AMOXICILLIN / CLAV. A.)</td></tr> <tr> <td style="padding: 2px;">ANEROBES</td><td style="padding: 2px;">FLAGYL / CLINDAMYCIN</td><td style="padding: 2px;">(DALACIN-C)</td></tr> <tr> <td style="padding: 2px;">Atypical</td><td style="padding: 2px;">CLARTHROMYCIN</td><td></td></tr> <tr> <td style="padding: 2px;">MRSA</td><td style="padding: 2px;">VANCOMYCIN</td><td style="padding: 2px;">Pseudomonas...CS</td></tr> </table>	G +ve	UNASYN	(AMPICILLIN / SULBACTAM)	G-ve	AUGMENTIN	(AMOXICILLIN / CLAV. A.)	ANEROBES	FLAGYL / CLINDAMYCIN	(DALACIN-C)	Atypical	CLARTHROMYCIN		MRSA	VANCOMYCIN	Pseudomonas...CS	1) POSTURAL DRAINAGE & (HIGH PROTEIN DIET) 2) AB → AS PNEUMONIA (IV then → Oral)	1) POSTURAL DRAINAGE. 2) AB → AS LUNG ABSCESS.
G +ve	UNASYN	(AMPICILLIN / SULBACTAM)															
G-ve	AUGMENTIN	(AMOXICILLIN / CLAV. A.)															
ANEROBES	FLAGYL / CLINDAMYCIN	(DALACIN-C)															
Atypical	CLARTHROMYCIN																
MRSA	VANCOMYCIN	Pseudomonas...CS															
2) EXPECTORANTS. 3) CHEST PAIN → NSAID (for pleurisy) Un-Resolving PNEUMONIA Immuno-suppression specific Org. TB - MRSA Atypical Legionella. Mycoplasma underlying D Br. CARCINOMA	3) EXPECTORANTS + BD. 4) SURGERY (IF RESISTANT) → LOBECTOMY.	3) EXPECTORANT + BD ..DRAINAGE <i>(as Chronic bronchitis lung abscess + Bronchiectasis)</i> 4) SURGERY (LOBECTOMY) IF: - LOCALIZED LESION. - PERSISTENT HAEMOPTYSIS. - PERSISTENT INFECTION. (MIXED INFECTION)															

	DIFFERENTIAL DIAGNOSIS	
	LUNG ABSCESS	BRONCHIECTASIS
• <u>General signs</u>	Toxemia & Clubbing	1) <u>Toxemia Clubbing &</u> 2) <u>LL edema</u> / "PROBLEM" 3) <u>puffiness of eye lids (chronic cough) dt:</u> - COR-PULMONAL. - AMYLOIDOSIS KIDNEY "PROBLEM"
• <u>Course</u>	ACUTE / SHORT DURATION	GRADUAL / LONG DURATION
• <u>site</u>	UNI-LATERAL	BI-LATERAL BASAL
• <u>expectoration</u>	↑↑ ON LYING ON HEALTHY SIDE	↑↑ ON LEANING FORWARDS.
• <u>RETENTION \$</u>	✓	✗
	يعني ثم يفضي (خراج واحد كبير)	ميعرفش يعني فميفضيش (خراريج صغيرة)

Infected Cystic Lung + Empyema e Bronch-pleural fistula ⇒ diagnosed by Inj. of Methylene-blue in pleura → blue colour of sputum.

COMPLICATIONS of lung abscess – BRONCHIECTASIS - PNEUMONIA - EMPYEMA



PLEURAL EFFUSION

PULMONARY Fibrosis

COLLAPSE

PNEUMO-THORAX

TRANSUDATE: G. EDEMA 3 الكبار

- 1) HF. SVC OBST.
- 2) NEPHRITIC \$ MYXEDEMA.
- 3) LIVER CIRRHOSIS
- 4) MIG'S \$ (OV. TUMOR + ASCITES + RT. PLEURAL EFF.)

EXUDATE

- 1) 1^{RY} ⇒ TB - TUMOR - PNEUMONIA.
- 2) 2^{RY} ⇒ DUE TO OTHER DISEASE.
 - CT DISEASES (SLE - RA)
 - PANCREATITIS (LT. SIDED EFF)
 - PULM. INFARCTION.
 - SUB-DIAPHRAGMATIC ABSCESS
 - MIXEDEMA.

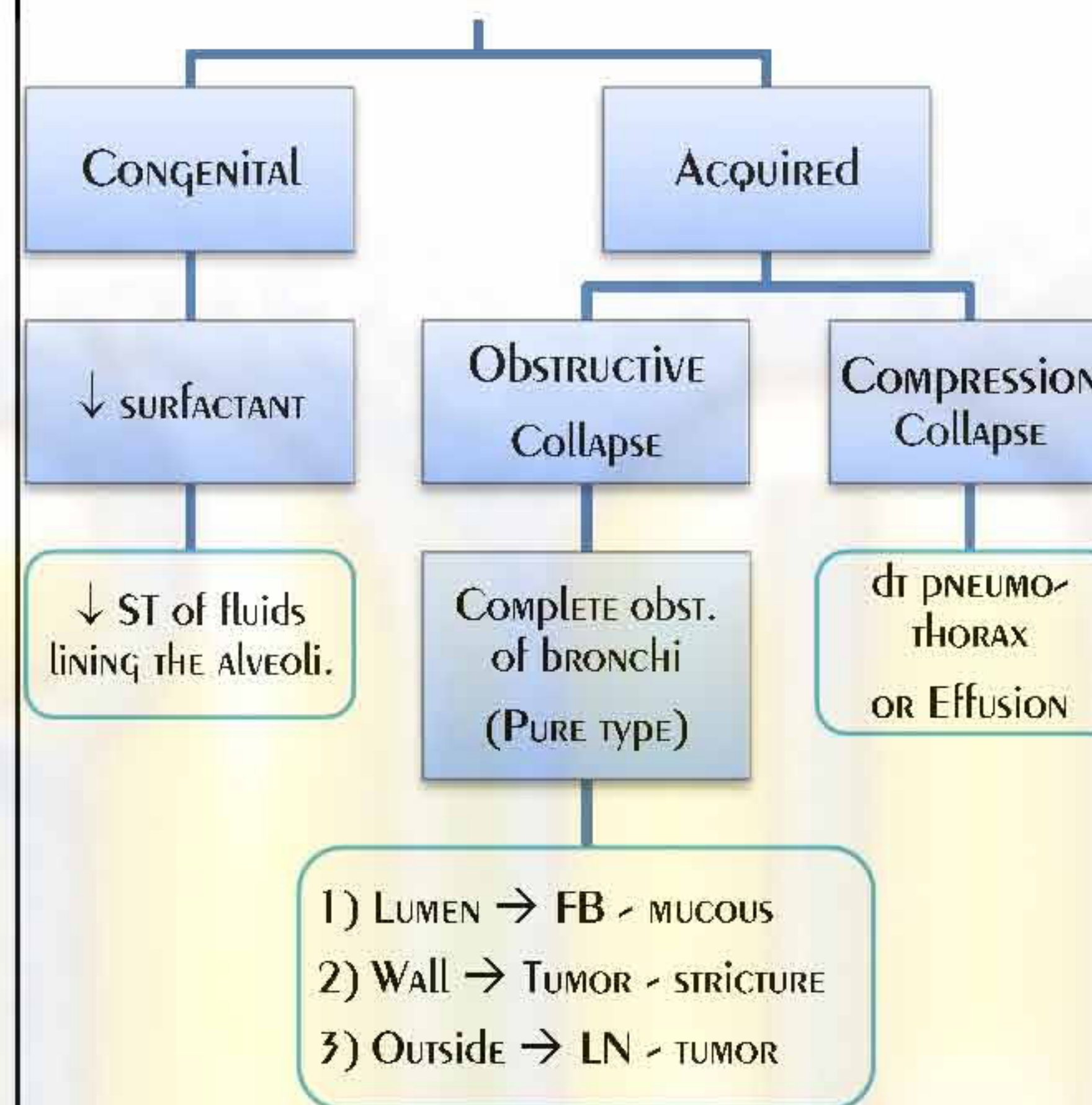
HGIC → TB - MALIGNANCY.

BLOODY → HEMO-THX. IN CHEST INV.

CHYLOUS → OBST. OF THORACIC DUCT.

CHRONIC INFLAM IN THE LUNG

- TB (PAST HISTORY).
- ABSCESS.
- EMPYEMA.
- BRONCHIECTASIS.



1) Spontaneous:

- 1^{RY} RUPTURE BLEB.
(Young - Normal - during exercise)
- 2^{RY} SEVERE BA.
RUPTURE SUB-PL. TB OR L. ABSCESS.

2) Traumatic:

- MECH. VENT. (BARO-TRAUMA)
- PENETRATING STAB WOUND.

3) Artificial. "OBSOLETE" TTT. OF TB (COLLAPSE)

1) Closed:

AIR IN PLEURA ISN'T CONNECTED E ATM.
(RUPTURE BLEB 1^{RY} PNEUMO-TH)

2) Open: "Benign"

AIR IN PLEURA IS CONNECTED E ATM.) TRAUMA
→ BRONCH-PLEURAL FISTULA.

3) Tension: DUE TO MECH. VENTILATION.

➤ CL./P

History of tapping.

s. toxic symptoms (fever & rigors) "if Empyema"

MANIFEST. OF THE CAUSE.

LOCAL Cough

- **Dyspnea.** "restrictive hypo-ventilation"
- **Chest pain.** "Dull aching pain".
- Empyema Necessitans = IC swelling → Expansile impulse on cough. (Necessary to be drained)

History of the above diseases.

LOCAL

- **Dyspnea** → Bronchiectasis.
- **Cyanosis** (severe cases)

USUALLY POST-OPERATIVE

MANIFEST. OF THE CAUSE.

LOCAL

- **Dyspnea.**
- **Cyanosis.**

ACUTE CHEST PAIN + Dyspnea:

- 1) PNEUMO-THORAX.
- 2) pulm embolism.
- 3) MI → PVC.
- 4) PNEUMONIA.

ACUTE

Chest pain

PT. FEELS STH. HAS RUPTURED.

ANXIETY

DUE TO SENSE OF IMPENDING DEATH)

Dyspnea

Shock

IN TENSION PNEUMO-TH. DT RT. HF

➤ CHEST SIGNS

MULTIPLE -VE SIGNS	<u>PL. EFFUSION</u> (HOMOGENOUS -VE SIGNS)	<u>PULMONARY Fibrosis</u> (HETEROGENEOUS -VE SIGNS)	<u>COLLAPSE</u> (HOMOGENOUS -VE SIGNS)	<u>PNEUMO-THORAX</u>
1) Inspection	↓ MOV. (NO RETRACTION)	↓ MOV. (RETRACTION)	↓ MOV. (RETRACTION)	↓ MOV.
2) palpation • TVF • Mediastinal	↓ OPP. SIDE	↓ OR ↑ at Marked traction of trachea SAME SIDE	↓ OR ↑ at underlying patent breath SAME SIDE	↓ TVF OPP. SIDE
3) percussion	Dullness in Traub's area in lt. sided eff. <u>Skodtas resonance</u> & comp. hyper-inflation.	DULLNESS (PATCHY)	DULLNESS (HOMOG.)	HYPER-RESONANCE
4) Auscultation	↓↓ INTENSITY OF BS.			

➤ INVEST.

1) **X-RAY** ⇒ *WEDGE DENSITY +*
OBLIT. OF COSTO-PH. ANGLE, RISING TO AXILLA.

2) **PLEURAL BIOPSY** → MAUG. T. B. **US** → **DIAGNOSTIC.**

3) **ASPIRATION:**

	EXUDATE	TRANSUDATE
PROTEIN	> 3GM %	< 3GM %
SP. GR.	> 1018	< 1010
CELLS	↑↑	↓↓
GLUCOSE	↓↓	AS BLOOD

➤ **OTHERS**

↓ WBCs	TB OR TUMOR	RA. (v. LOW)
↑ AMYLASE	PANCREATITIS	⇒ LT. PLEURAL EFF.
↓ Ca^{2+}	SLE	pH < 7.2 IN EMPYEMA
↑ TBACS	TB TUMOR	ZN / PCR FOR TB

X-RAY

- Crowded ribs.
- Tenting of diaphragm.
- Mediastinal shift to same side.
- Heterog. opacity

RFT → RESTRICTIVE HYPO-VENT.

X-RAY

- Crowded ribs
- Raised cupula of diaphragm.
- Mediastinal shift
- Collapsed lung e
 - Homog. opacity
 - Well defined border..

BRONCHOSCOPY ⇒ **DIAGNOSTIC & THERAPEUTIC FOR (FB OR SECRETION).**

1) **X - R A Y C H E S T**

2) **MEASURE INTRA-PLEURAL PR.**

ACUTE Chest Pain + Shock?!

- 1) Tension PNEUMO-THORAX.
- 2) Massive pulm embolism.
- 3) Extensive MI → HF.
- 4) Dissecting Aortic Aneurysm.

➤ TREATMENT

1) of the CAUSE. (<i>ABS IN EMPYEMA</i>) 2) DRAINAGE by ⇒ IC tube under H₂O seal to avoid sudden decompression of the collapsed lung; → Unilateral PE <i>If failed</i> ... Open drainage ... <i>if failed</i> Decortification.	1) No specific trt. 2) Symptomatic trt.	1) of the CAUSE. 2) BRONCHOSCOPY. 3) BREATHING EXERCISE.	1) IC tube under H₂O seal NOT inserted for > 48-72 hrs to avoid infection + 2) <i>In recurrent Pneumo-th</i> ⇒ PLEURODESIS by intra-pleural inj. of Tetracycline - Glucose.
--	---	---	--

BRONCHOGENIC CARCINOMA

"old ♂ - heavy smoker C/O ⇒ change in cough pattern of smoker"

➤ DEF.:

- Common malignant tumor.
- affecting ♂ > ♀.
- peak age: 55 – 65 ys.

CIGARETTE PACK YS.:

↑↑ risk 60-70 fold
if smoking 40 cig./day for 20 yrs

➤ ETIOLOGY → PDF:

- Air pollution.
- Smoking. (3,4 benzpyrine)
- GENETIC: dominant ONCOGENES & loss of TUMOR SUPPRESSOR cells.
- RADIATION FROM ATOMIC Bombs.
- Asbestosis.

➤ PATHOLOGY

SITE

Central or Hilar

IN MAIN BRONCHUS

⇓
MEDIASTINAL
SYMPTOMS

Peripheral

IN SMALL BRONCHUS

⇓
INVADE PLEURA EARLY
PAN COST TUMOR
APICAL & PERIPHERAL.

⇓
DULLNESS IN KRONIG'S
ISTHMUS

PATHOLOGY

Gross

→ FUNGATING MASS.
→ INFILTRATIVE MASS.
→ MALIGNANT ULCER.

MICRO "WHO"

Type I ⇒ SCC (CENTRAL - SMOKING)

Type II ⇒ SMALL CC (CENTRAL - PARA-MALIG.
CHEMO-SENSITIVE)

Type III ⇒ ADENO-CARC. (YOUNG FEMALES - ASBESTOS)

Type IV ⇒ LARGE CC (EARLY METASTASIS)

SPREAD

a) **DIRECT** → LUNG, PLEURA, MEDIASTINUM.

b) **BLOOD** → 2B 2L.

c) **LYMPHATIC** → HILAR - MEDIASTINUM - CX

RETRO-GRADE LYMPHATIC

→ LYMPHANGITIS CARCINOMATOSA

→ DIFFUSION DEFECT → HYP

→ PULMONARY VC → P⁺⁺

→ COR-PULMONALE.

Corpulmonal is DT

COPD

lymphangitis
CARCINOMATOSA

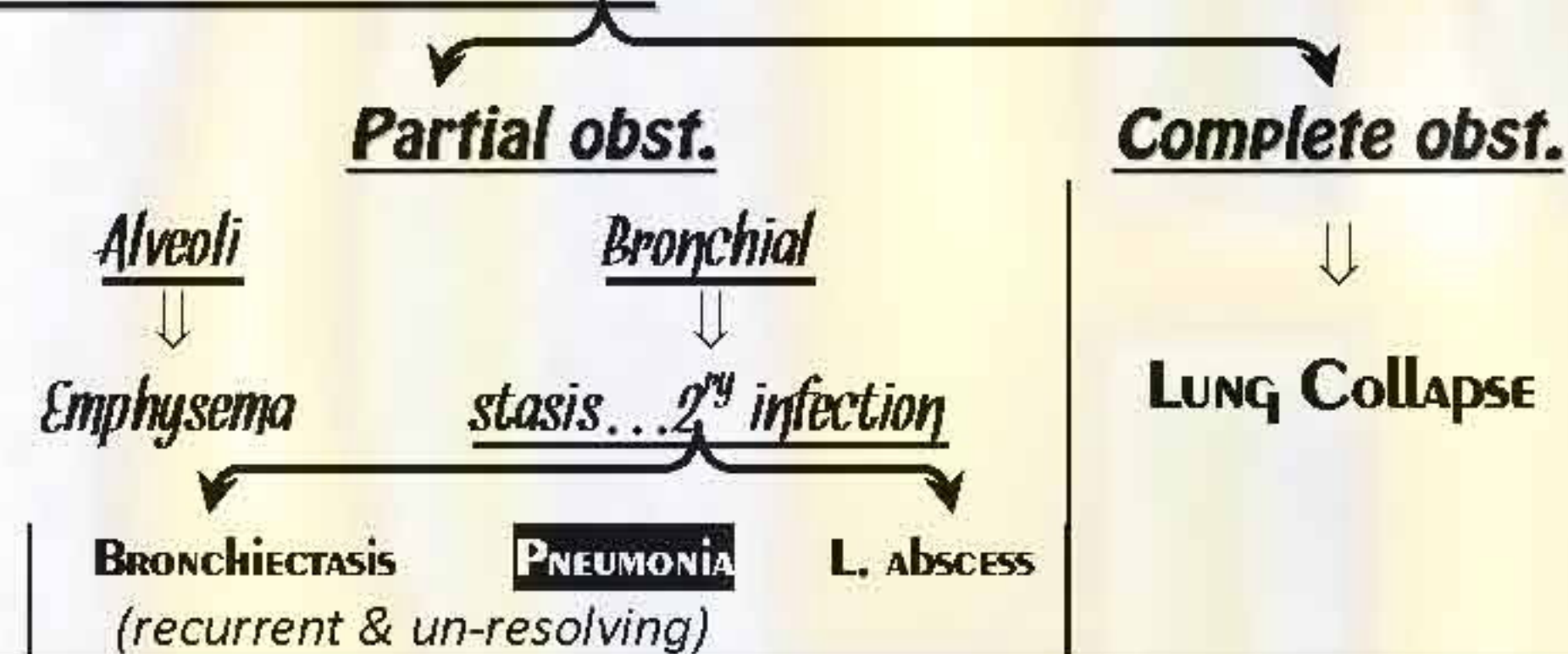
➤ **CL./P** "old ♂ - heavy smoker C/O ⇒ change in Cough pattern of smoker"

THORACIC

A- LUNG كل حاجة

- 1) **ASYMPTOMATIC.** (ROUTINE X-RAY ⇒ NODULAR OPACITY & SPIKY BORDER)
- 2) **Cough & Haemoptysis** ⇒ **Red Currant jelly** (عصير فراولة بكريم شنتيه)
• NECROTIC TISSUE + RED CELLS + MUCOUS.

3) BRONCHIAL OBSTRUCTION:



4) Pan-cost tumor ⇒ Thoracic inlet \$

- a) **Laf.** upper 3 ribs.
- b) **Sup.:**
 - SVC OBSTRUCTION** ⇒ CONG. NON-PULSATING NECK V. + CYANOSIS IN TONGUE (PERIPHERAL)
 - SUB-CLAVIAN A.** ⇒ UNEQUAL PULSE VOLUME IN BOTH UL
 - BRACHIAL PLEXUS** (LOWER TRUNK) ⇒ ULNAR DIST. ⇒ PAIN IN MEDIAL FOREARM + WASTING OF SMALL MS. OF HAND.
- c) **Post.:** SYMPATHETIC CHAIN ⇒ (**HORNER \$**) ⇒ PTOSIS - MIOSIS - ANHYDROSIS.

B- PLEURAL EFFUSION

MALIGNANT EXUDATE

- 1) MASSIVE "RAPIDLY PROG. DYSPNEA"
- 2) HEMORRHAGIC
- 3) RAPIDLY ACCUMULATING.

TRANSUDATE

DUE TO OBST. OF
AZYGOS V.

CHYLOUS

DUE TO OBST. OF
THORACIC DUCT.

EMPHYEMA

DUE TO RUPTURE OF MALIG.
ABSCESS INTO PLEURA.

C – MEDIASTINAL \$ (DYSPHAGIA.....)

EXTRA-THORACIC

METASTATIC

(see before)

PARA-MALIGNANT \$

1. CLUBBING.

2. NEURO-LOGICAL: "bi-lateral"

- MYOPATHY.
- NEUROPATHY.
- MG 2^{RY} TO PARA-MALIG. (**EATON-LAMBERT \$**)

3. ENDOCRINAL:

- **ACTH** ⇒ CUSHING \$ (WT. GAIN – HTN – DM)
- **CARCINOID \$.** (AS BRONCHIAL ADENOMA)
- **PTH** ⇒ HYPER-CALCEMIA.
- **ADH** ⇒ (SIADH).

4. SKIN:

- PRURITIS. (**DD OF ITCHING**)
- HERPES-ZOSTER.
- DERMATO-MYOSITIS.
- **ACANTHOSIS NIGRICANS** (hyper-pigmented thick skin (occurs in Br. carcinoma + insulin R.))

5. HEMATOLOGICAL Thrombo-phlebitis migrans ⇒ RECURRENT DVT (AS CANCER PANCREAS)

➤ NB: MCQs

- 1) Hyper-calcemia ⇒ Squamous CC.
- 2) ACTH & SIADH ⇒ small CC.
- 3) Clubbing ⇒ non small cc.

➤ INVESTIGATIONS

1) **X-RAY** ⇒ *NODULAR OPACITY & SPIKY BORDER.*

2) **CT SCAN SPIRAL.** (E CONTRAST)

3) **BRONCHOSCOPY** → BIOPSY.

• OTHERS:

1) **SPUTUM EXAM..** → FOR MALIGNANT CELLS

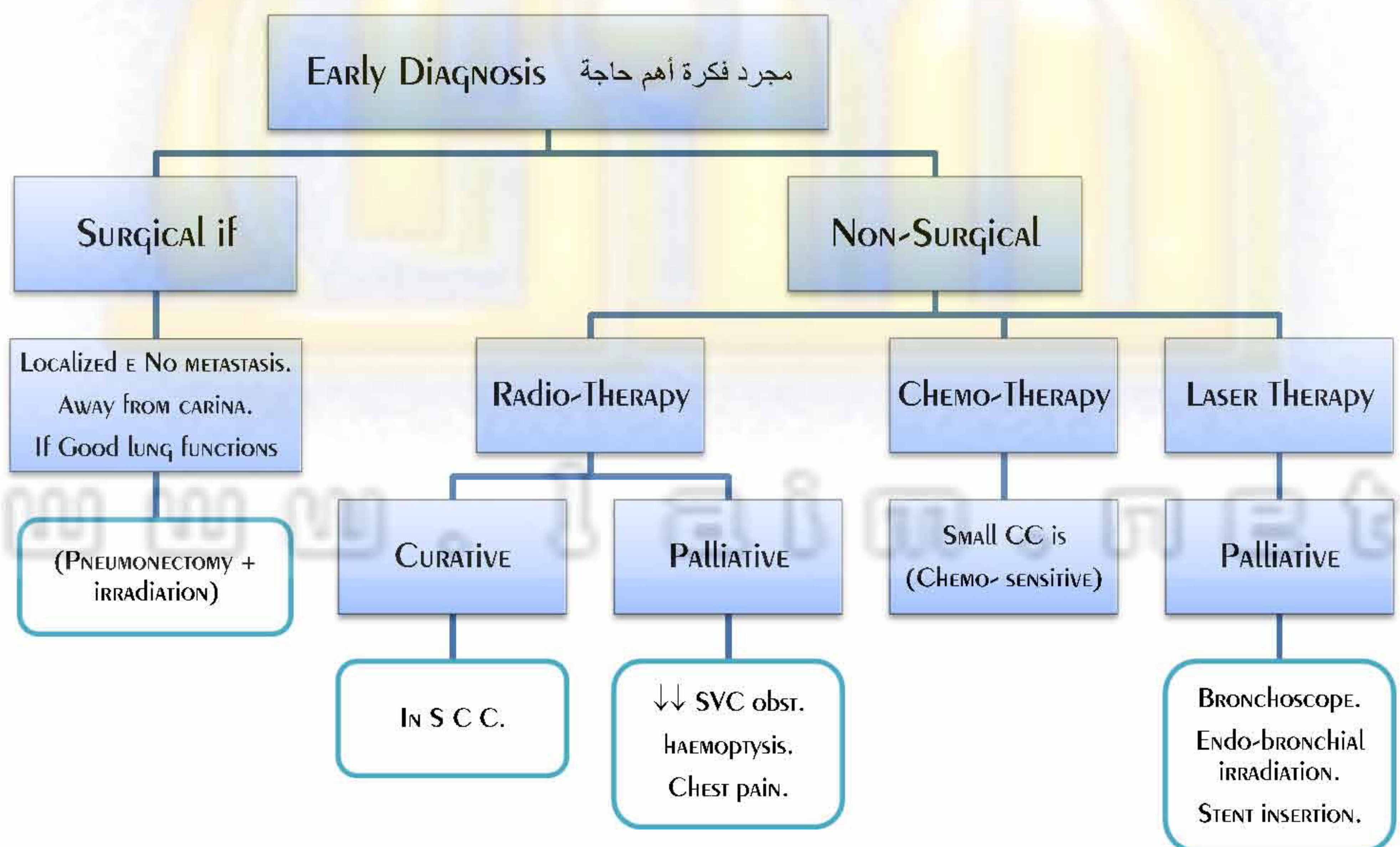
2) **LN BIOPSY** FROM SCALENE LN.

3) **MEDIASTINOSCOPY** (FOR LOCAL EXTENSION)

DD

- LUNG ABSCESS.
- PNEUMONIA.
- TB.
- PULMONARY INFARCTION.
- CAUSES OF PL. EFFUSION & MEDIASTINAL S.

TREATMENT OF BRONCHOGENIC CARCINOMA



BRONCHIAL ADENOMA

Cl./P.: *female e recurrent haemoptysis.*

- 1) **COUGH / RECURRENT HAEMOPTYSIS.**
- 2) **CARCINOID \$** → **BS** ⇒ *Dyspnea, wheezy chest.*
→ **FLUSHING.**
→ **DIARRHEA.**

INVEST.

- 1) **X -RAY.**
- 2) **BRONCHOSCOPY** → *Biopsy.*
- 3) **HIAA in URINE.** *"metabolite of serotonin"*

Ttt.: **Non-specific TTT.**

- 1) *Surgical removal.*
- 2) *Radio & Chemo-th.*

SYSTEMIC D. + BS ?!!

- 1) **VASCULITIS ...** CHURG-STARUS.
- 2) **CARCINOID \$...** BRONCHIAL ADENOMA.

MESO-THELIOMA

Cl./P.

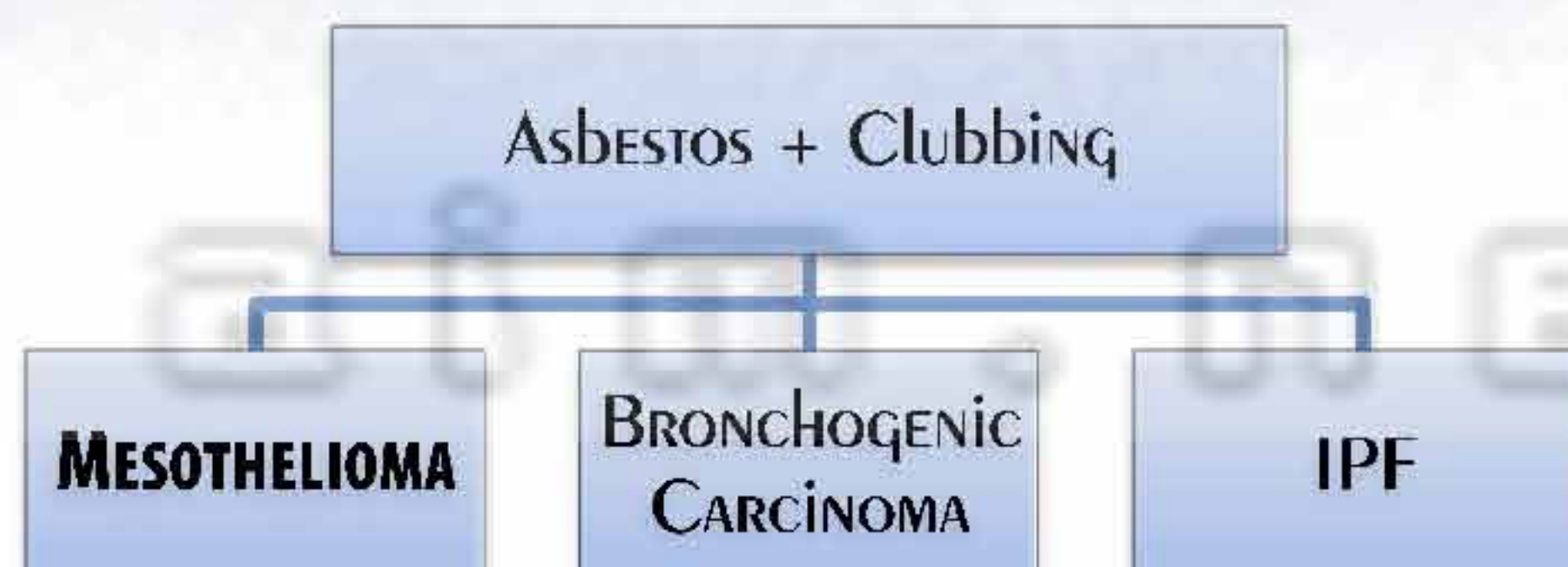
- 1) **CHEST PAIN.**
- 2) **DYSPNEA.** (pl. effusion "hqc")
- 3) **CLUBBING.**

INVEST.

- 1) **X -RAY.**
- 2) **PLEURAL BIOPSY.**

Ttt.

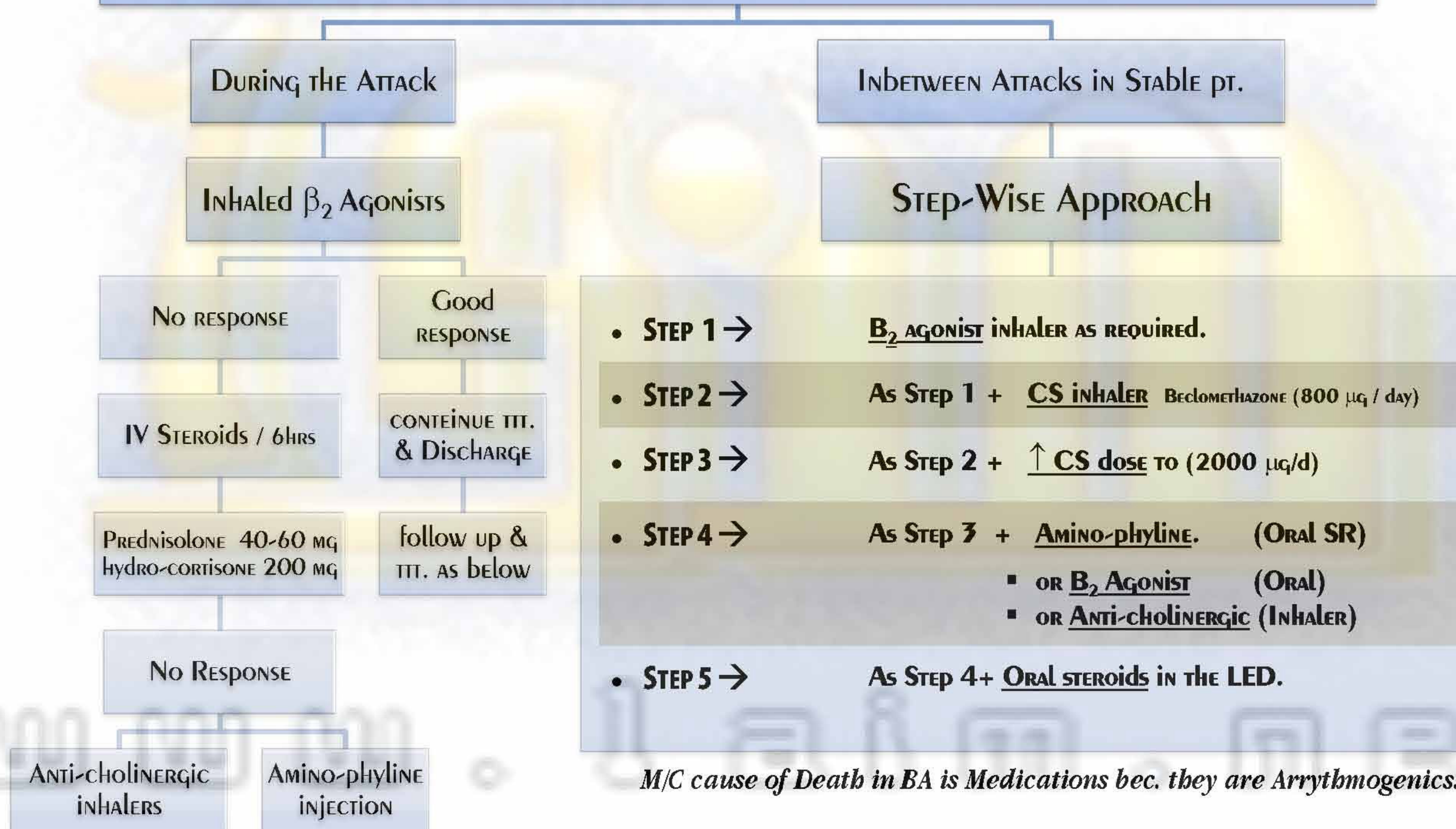
- 1) **LOCALIZED** ⇒ *Surgical removal* ⇒ *Good prognosis.*
- 2) **DIFFUSE** ⇒ *Radio & Chemo-th.* ⇒ *Bad prognosis.*



PARA-MALIGNANT \$ IN LUNG TUMORS

- 1) **BRONCHOGENIC CARCINOMA.**
- 2) **BRONCHIAL ADENOMA.** "Carcinoid \$"
- 3) **MESOTHELIOMA.**

TREATMENT OF BRONCHIAL ASTHMA



M/C cause of Death in BA is Medications bec. they are Arrhythmogenics.

TREATMENT OF BRONCHIAL ASTHMA

	DURING ATTACKS				IN BETWEEN ATTACKS (ABC)			
	B ₂ AGONIST "INHALERS"	AMINO-phylline "IV"	STERIODS "IV"	Anti-Ch. "INHALERS"	AMINO-phylline "LONG-ACTING"	B ₂ AGONIST "SYSTEMIC"	STERIODS	
®	SALBUTAMOL TERBUTALINE		hydro-CORTISONE	IPRA-TROPiUM BROMIDE	QUIBRON 300 mg Anhydrous AMINO-ph.	SALBUTAMOL TERBUTALINE	(BECOTID) BECLOMETHAZONE	PREDNISOLONE
ROUTE	MDI	IV VERY slowly	IV	INHALER	Oral (3/3)	Oral	LOCAL INHALERS	SYSTEMIC
DOSE	2 puffs AS REQUIRED TO BE REPEATED AFTER 20 MINS. (100 ug/puff)	5mg/kg (v. slowly)	200mg/6hrs	40 µg 3times/day	200 mg/12 hr.	2-4 mg/D	800-2000 µg/d (200 ug / puff)	30 mg/d till improv. → MD 5 - 10 mg/d
ACTION	BD	BD	Anti – inflam. Anti - ALLERGIC	BD	PDE (-) → ↑ cAMP → ↑ ACTIONS OF CA	BD	Anti-INFLAMMATORY	
ADV.	1) No S/E of SYSTEMIC B ₂ AGONIST. 2) Rapid ACTION		V. rapid ACTION COMBIVENT® (CS + Ip. Br.)	NOT absorbed "NON-ARRYTH."	LONG ACTING LESS GIT upset.			(-) REMODELLING
S/E	Weekly absorbed from BRONCHIAL MUCOSA → TREMORS & palpitations	ARRYTHMOGENIC HEART - LIVER d. → ↓ dose. SMOKERS → ↑ dose.	NOT reported	No SE		TREMORS TACHYCARDIA (palpitation)	Oral CANDIDIASIS <i>wash mouth by water after use.</i>	1) OSTEO-POROSIS. 2) HTN. 3) DM - PU.
<u>D- Adrenaline: (BETTER TO BE AVOIDED)</u> - PT. MUST BE NON HYPERTENSIVE OR CARDIAC. - DOSE: (1/1000) 0.5 ML. → S.C.						<u>A) MAST CELL STABILIZER</u> - NA CROMOGLICATE (Intal) - KETO-TIFEN. ..sedation <u>b) LT ANTAGONIST. "Montelukast" (Singular)</u> <u>c) MUco-lytics.</u> <u>d) Anti-IgE</u>		

TREATMENT OF STATUS ASTHMATICS

➤ **Def.** SEVERE FORM OF ASTHMATIC ATTACK $\Rightarrow$ prolonged & NOT RESPONDING TO USUAL THERAPY for 24 hrs. = (ACUTE SEVERE ASTHMA)

➤ **Signs of SEVERE ASTHMATIC ATTACKS**

- 1) **EXHAUSTION** $\rightarrow$ *pt. can't speak in sentences.*
- 2) **DEHYDRATION** $\rightarrow$ *due to **hyperventilation***
- 3) **TACHYCARDIA** $> 120/m.$
- 4) **Pulsus paradoxus.** (*dt $\uparrow$ INTRA-THORACIC PR.*)
- 5) **Silent chest.** (due to air-way obst.)
- 6) **PEFR $< 60\%$.**
- 7) **Cyanosis** $\rightarrow$ *pt can't speak*
- 8) $\downarrow O_2$ - $\uparrow CO_2$ (**TYPE II RF**)

Other MEASURES in TREATMENT of BRONCHIAL ASTHMA

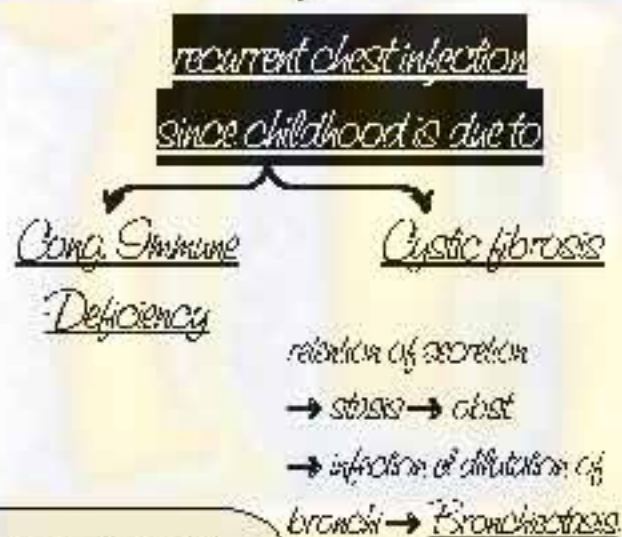
- 1) **Avoid A₁** if possible.
- 2) **DESENSITIZATION.** (blocking IgG)
- 3) **Tryptizole (TCA):** sedative **Anti-cholinergic** dt irritability.

➤ **Treatment:**

- 1) **hospitalization.** (PEFR /ABG)
- 2) **O₂ THERAPY 60%.**
- 3) **IV hydro-CORTISONE** $\rightarrow$ 200 mg /6 hrs for 24 hrs....THEN **Prednisolone** 60mg/d orally for 2 wks.
- 4) **B₂ AGONIST** by Nebulizer (2.5 – 5 mg/4hrs.)

Good response	Bad response.....Add
$\downarrow$ B ₂ by NEBULIZER TO 6-hr THEN CHANGE TO MDI $\downarrow$ THEN TIT. IN bet ATTACKS (STEP-WISE APPROACH)	• Ipratropium. • IV Aminophylline • B₂ AGONIST $\downarrow$ if NO response VENTILATOR

- **DEF.:** **AR** disease ⇒ affecting **EXOCRINE** gland
 ⇒ ↑ **VISCOSITY** of **SECRETIONS**.
specially ⇒ **BRONCHIAL MUCOSA – PANCREAS – SWEAT. GL.**



- 1) **pancreas** ⇒ **cystic pancreas** ⇒ **Mal-absorption** &
- 2) **Liver** ⇒ **stasis in bile** ⇒ **biliary cirrhosis** + lung d.
- 3) **Infertility** ⇒ (**Kartagener's** & / **Cystic fibrosis**)
 - a) **prostatic secretion** ⇒ **vas deferens** abs.
 - b) **Ca secretion** ⇒ **obstruction**.
- 4) **MECONIUM ILEUS** ⇒ **lit. By enema**.
- 5) **SWEAT** ⇒ ↑ **No. loss**.

- 1) **LUNG ABSCESS.**
- 2) **BRONCHIECTASIS.**
- 3) **Cystic lung.**

- **INVESTIGATIONS:** **Early Diagnosis is v. imp.**

- a) **Lung** ⇒ **X-ray "soap bubble app."** / **CT scan.**
- b) **Pancreatic function.**
- c) **Sweat** ⇒ ↑ **NaCl.**

- 1) **PANCREATIC** ⇒ **Good nutrition.**
- 2) **SWEAT** ⇒ **Salt supplements.**
- 3) **RECURRENT INFECTIONS** ⇒ **ABS** since childhood.
- 4) **↓ VISCOSITY of SEC.**
 - a) **Amiloride** ⇒ ↑ **water content** of **bronchial sec.** ⇒ ↓ **viscosity sec.**
 - b) **DORNASE** - α **AS MUCOLYTIC.**

- **SURGICAL** ⇒ **bi-lateral lung** or **heart-lung transplant.**

Interstitial-Pulmonary fibrosis

DEF. Group of diseases ccc. by infiltration of the lung's interstitial t by abnormal t

➤ PATHOGENESIS

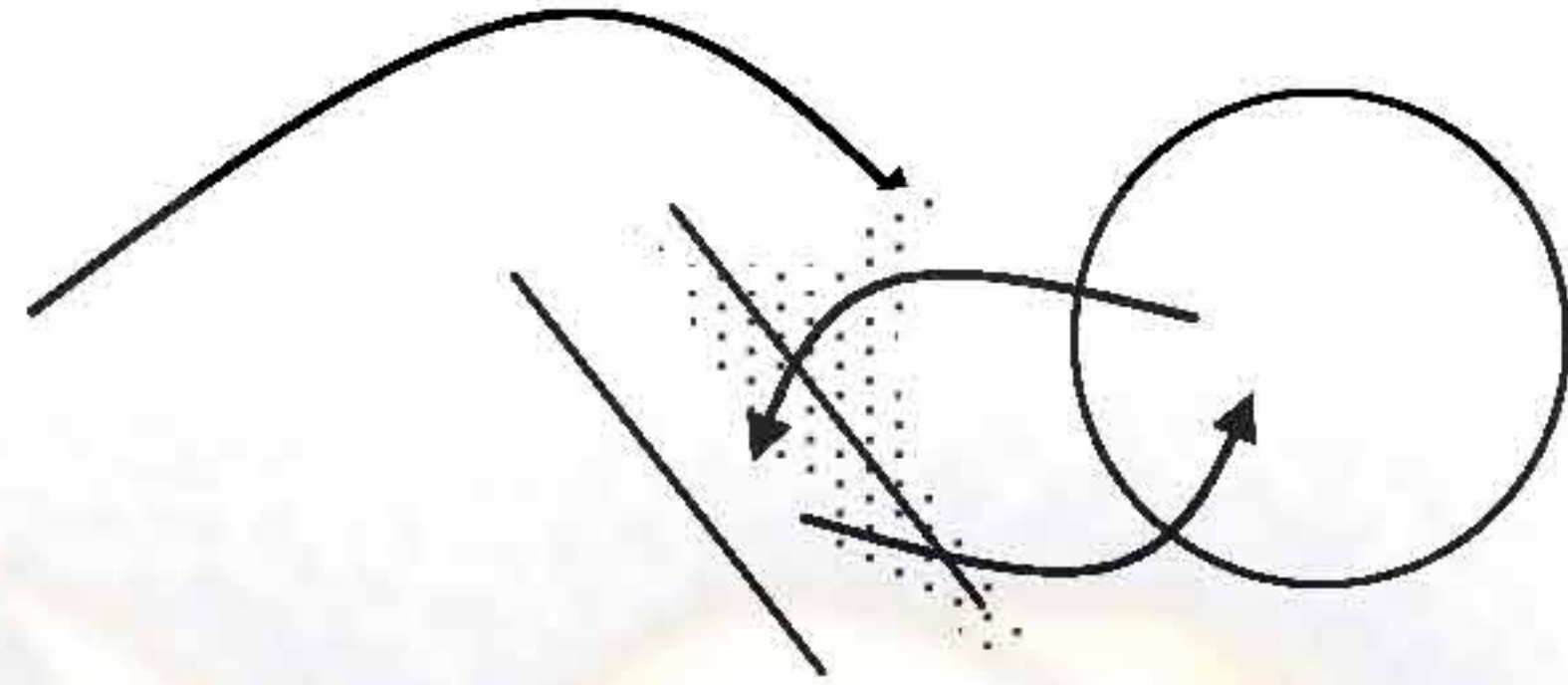
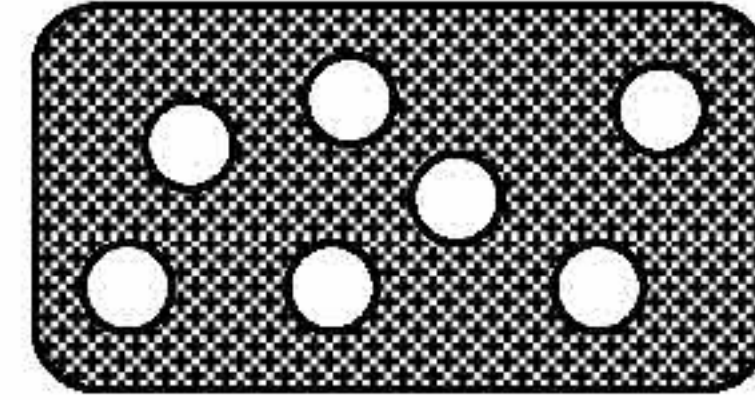
Exposure to dust $\rightarrow$ $\oplus$ immune system
 $\rightarrow$ Inflammatory reaction
 $\rightarrow$ Direct toxicity

INTERSTITIAL INFILTRATION WITH INFLAMMATORY CELLS.

Diffusion defect
(↓O₂)

RECOVERY if THE CAUSE is AVOIDED

IPF (irreversible)
RF Cor-pulmonal



➤ CAUSES

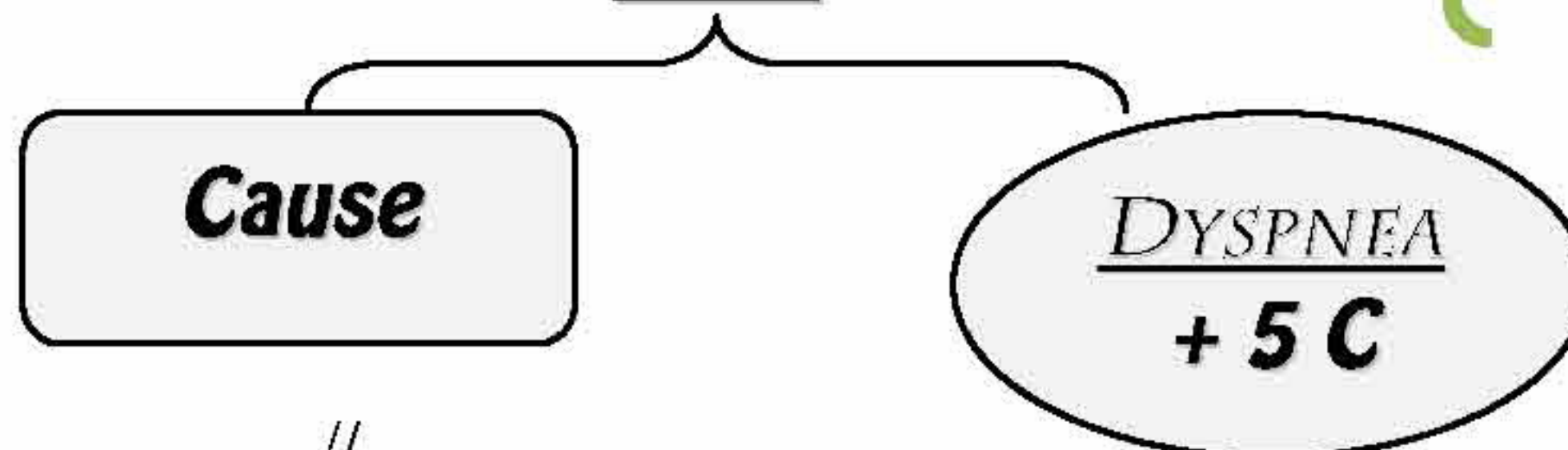
- 1) **Dust** → Inorganic dust = pneumoconiosis.
→ Organic dust = allergic pneumonitis.

- ## 2) SARCOIDOSIS

- 3) COLLAGEN DISEASES
- RHEUMATOID DISEASES.
 - ANKYLOSING SPONDYLITIS.

- 4) Idiopathic → HAMMAN Rich \$.

➤ Cl./P



*History of exposure,
Arthropathy.*

- **C**ough → “chronic – dry – no response to ttt.”
- **C**repitation. (fine leathery ccc.)
- **C**yanosis.
- **C**lubbing.
- **C**ore pulmonale.

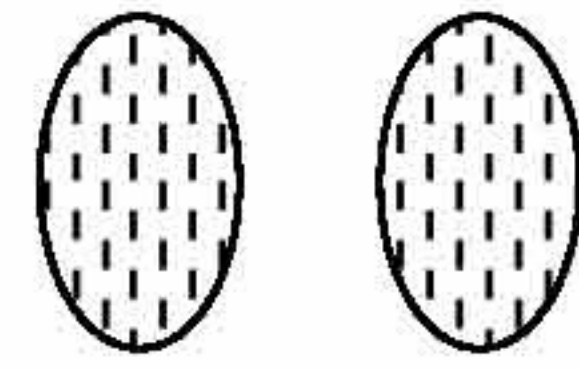
DD of Chronic Cough (p.15):

- 1) Military TB.
2) HRT.

INVESTIGATIONS: Early diagnosis

1) CT scan high resolution.

- 2) **X-ray** $\Rightarrow$ diffuse lung infiltration (military shadow)
- 3) **Blood gases** $\Rightarrow$ diffusion defect ($\downarrow\downarrow$ O_2)
- 4) **Lung biopsy** $\Rightarrow$ (open or trans-bronchial)



TREATMENT:

➤ Avoid cause

- 1) Antioxidant.
- 2) Bronchodilators.
- 3) **STERIODS** القاعدة كاملة.....B4 FIBROSIS
- 4) O_2 therapy.

➤ **Lung transplant. "late"**

separate types of IPD Occupational lung diseases

1) **PNEUMOCONIOSIS:** *inorganic dust*

A- Asbestosis

- IPD
- pleural effusion. (Non-Malignant)
- Bronchogenic Carcinoma
- Mesothelioma "Diffuse type"

B- Silicosis → IPD + TB.

2) **COAL WORKERS PNEUMOCONIOSIS** "inorganic dust"

Simple pneumoconiosis

- It's radiological finding.
- It doesn't progress to fibrosis.

3) **EXTRINSIC ALLERGIC ALVEOLITIS OR HS PNEUMONITIS:** **ORGANIC NO BS**

- Farmer's lung due to inhalation of actinomycetes present in the (hay).
- C/P → After exposure (by 6 hr.) → Cough - Dyspnea - Fever.
- Repeated chronic exposure ⇒ IPF + No BS ⇒ No Wheezy Chest

4) **Byssinosis (COTTON)**

- Initially → Bronchiolitis
- Chronic → Occupational BA.

5) **HUMIDIFIER FEVER**

- Amoeba ⇒ Fever - dyspnea (Bronchiolitis)
- Legionella ⇒ pneumonia.

6) **Eosinophilic PNEUMONIAS (p. 83)**

SARCOIDOSIS

➤ DEF. chronic Systemic disease of **Unknown etiology** ccc. by:

- non-caseating Granuloma.
- Tcell dysfunction "**CMI**"

عاشقة الـ post.
pituitary

↓ CMI	(Normal) HMI
Lymphopenia & lymphocytic infiltr. of the tissues.	good Ab production
↓	↓
-ve tuberculin (anergy)	So not l. Compromised

➤ CL/P

Pulmonary	Extra-Pulmonary
⇓ Interst. pulm. diseases ⇓ (DYSPNEA + 5C) fine crepitations	• CNS ⇒ Bilateral 7 N. paralysis. (DD) • Head ⇒ • post pituitary ⇒ SIADH ⇒ DI • Eye ⇒ Uveitis ⇒ Red eye. • Lacrimal & parotid gl. ++ • CVS ⇒ Cardiomyopathy (restrictive) • LIVER - SPLEEN - LN ++ (Mediastinal) • Skin ⇒ ERYTHEMA Nodosum. • Joints ⇒ Arthritis. • Hyper-calcemia ⇒ due to sec. of active vit. D from MQ

Bilateral 7 N. paralysis

- 1) Sarcoidosis
- 2) GB S.
- 3) Bilat. Bell's Palsy
- 4) MS.

ERYTHEMA Nodosum:

- 1) Sarcoidosis - TB.
- 2) post-STREPTOCOCCAL.
- 3) IBD.
- 4) hairy cell leukemia.
- 5) Idiopathic.

MEDIASTINAL LN++

- 1) Sarcoidosis - TB.
- 2) Lymphoma. (NHL)
- 3) BR. CARCINOMA.

➤ INVEST.

- 1) **X-RAY** ⇒ STAGING.
- 2) **BLOOD** ⇒ **↑↑ ACE** E ACTIVITY - **↑ CA** - **↑ ESR.**
- 3) **BLOOD GASES** ⇒ HYPOXIA DUE TO DIFFUSION DEFECT.
- 4) **BIOPSY** ⇒ NON-CASEATING GRANULOMA + **↑ LYMPHOCYTES. "BAL"**
- 5) **HYPER-SENSITIVITY TEST:**
 - -VE TUBERCULIN (**ANERGY**)
 - +VE KVEIN TEST → ID INJECTION OF SARCOID TISSUE.
- 6) **RFT** ↓↓ ⇒ **DIFFUSION DEFECT (RESTRICTIVE HYPO-VENTILATION)**

➤ **TREATMENT** ⇒ **STERIODS** القاعدة كاملة

PULMONARY TB

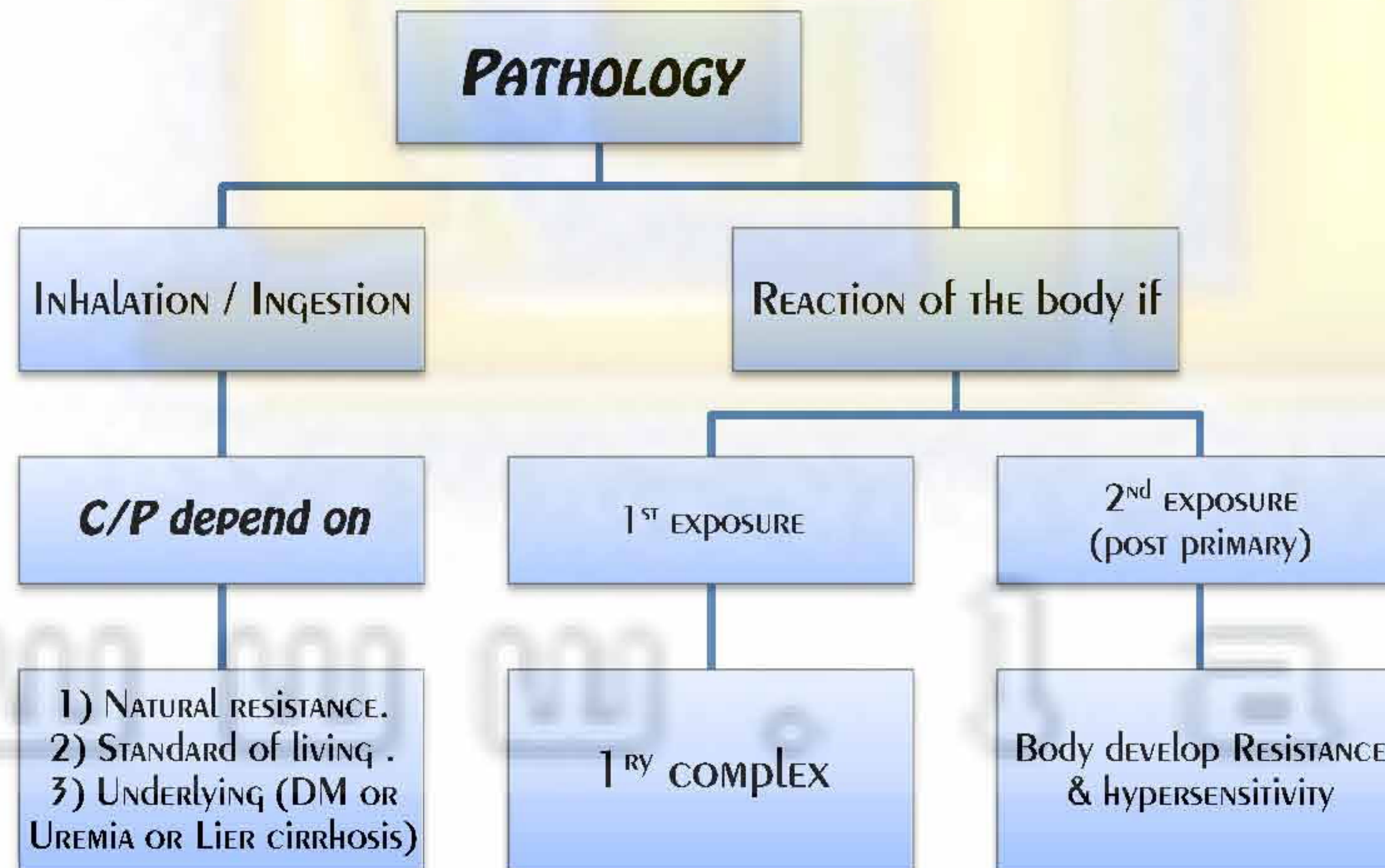
CA ⇒ **MYCOBACTERIUM:**

- 1) **M. TB** → (HUMAN TYPE) ⇒ **PULMONARY TB.**
- 2) **M. BOVIS** → (ANIMAL TYPE) ⇒ **INTESTINAL TB.**
- 3) **ATYPICAL M** → IN IMMUNO-COMP. (HIV)

M. MARINUM* M. KANSASII *M. AVIUM

High Risk Group:

- **CHILDREN** **CONTACT**
- **IMMUNO-COMP.** **OVER-CROWDING.**
(DM – LCF – CRF – HIV)
- **IMMUNE supp.** → EG **SLE UNDER STEROIDS.**
- **Silicosis.**



CL./P of TB

1st Exposure

"childhood"
"middle & lower lobes"

Primary Complex

HEALING

COMPLETE

RESOLUTION
OR fibrosis &
Ca⁺⁺

PARTIAL

DORMANT
Gohn's focus

"RE-ACTIVATES if ↓
RESISTANCE"

IMMUNE-RESPONSE

EXAGGERATED

hyper-SENSITIVITY

- 1) EN.
- 2) PhlyCTEN. "red eye"
- 3) PL. effusion. "red dot"

v. WEAK

Progression

GENERAL

c. ABOVE

TB LUNG

- 1) TB Cavity.
- 2) TB PNEUMONIA.
- 3) PL. effusion. "di
rupture of cavity in pleura"

LN "HILAR"

ENLARGEMENT

- 1) Middle lobe \$.
- 2) Mediastinal \$.
- 3) Collapse. "di
compression on bronchus"

RUPTURE

- 1) Pleurisy.
- 2) TB PERI-CARDITIS.
- 3) PV .. Miliary TB

GENERAL MANIFESTATION OF TB

TOXEMIA

(2N 2L)

TB LUNG

a) Cough & Expectoration

b) Haemoptysis due to:

- bleeding from vascular granulation t.
- erosion of big vs. traversing a TB cavity.

2nd Exposure

"Adult"
"Apical lung lesion"

Post-Primary TB

CL./P acc. to ...

↓↓ RESISTANCE

RE-ACTIVATION OF
DORMANT focus

HAEMATOQ.
SPREAD FROM
UN-HEALED LN

↑ ORG.

RE-INFECTION

- TB-BP → DT ↓ IMMUNITY v. BAD GC.
- FIBRO-CASEOUS TB → COMMON.
- MILIARY TB → IF RUPTURE IN BVs.

No symptoms or signs
(Only FEVER & COUGH!!)



PASSES UN-NOTICED UNLESS
THESE INVEST. ARE DONE:

- 1) X-ray
- 2) Sputum
- 3) Tuberculin test →
Converts from -ve to +ve.

MANIFESTATION OF MILIARY TB

- Marked toxemia. (2N / 2L)
- Dyspnea.
- Diffuse lung crepitations.
- **Liver Spleen ++**
- **INVEST.:**
 - ✓ Fundus exam. → choroid tubercles.
 - ✓ -ve tuberculin test.

INVESTIGATION = 5 Ps (TB is a Lab diagnosis)

1) **C&S** $\Rightarrow$ (ZN / LJ / MB) -ve for 3 times = -ve TB infection

- Sputum
- Lavage (Gastric or Bronchial)
- Urine - CSF - BM

1) **X-RAY** $\Rightarrow$ APICAL LESION / BASAL IN HIV.

2) **BLOOD PICTURE:**

- $\uparrow$ **ESR** & **ACTIVITY**
- **LEUCOPENIA** with $\uparrow\uparrow$ **LYMPHOCYTES** AS **VIRAL**
(TB - BRUCELLA - TYPHOID - IMN)
- **ANEMIA.** (Normo / Normo)

3) **PCR:** "most accurate; but can't detect dead TB"
 $\rightarrow$ can't know active infection"

4) **BIOPSY:**

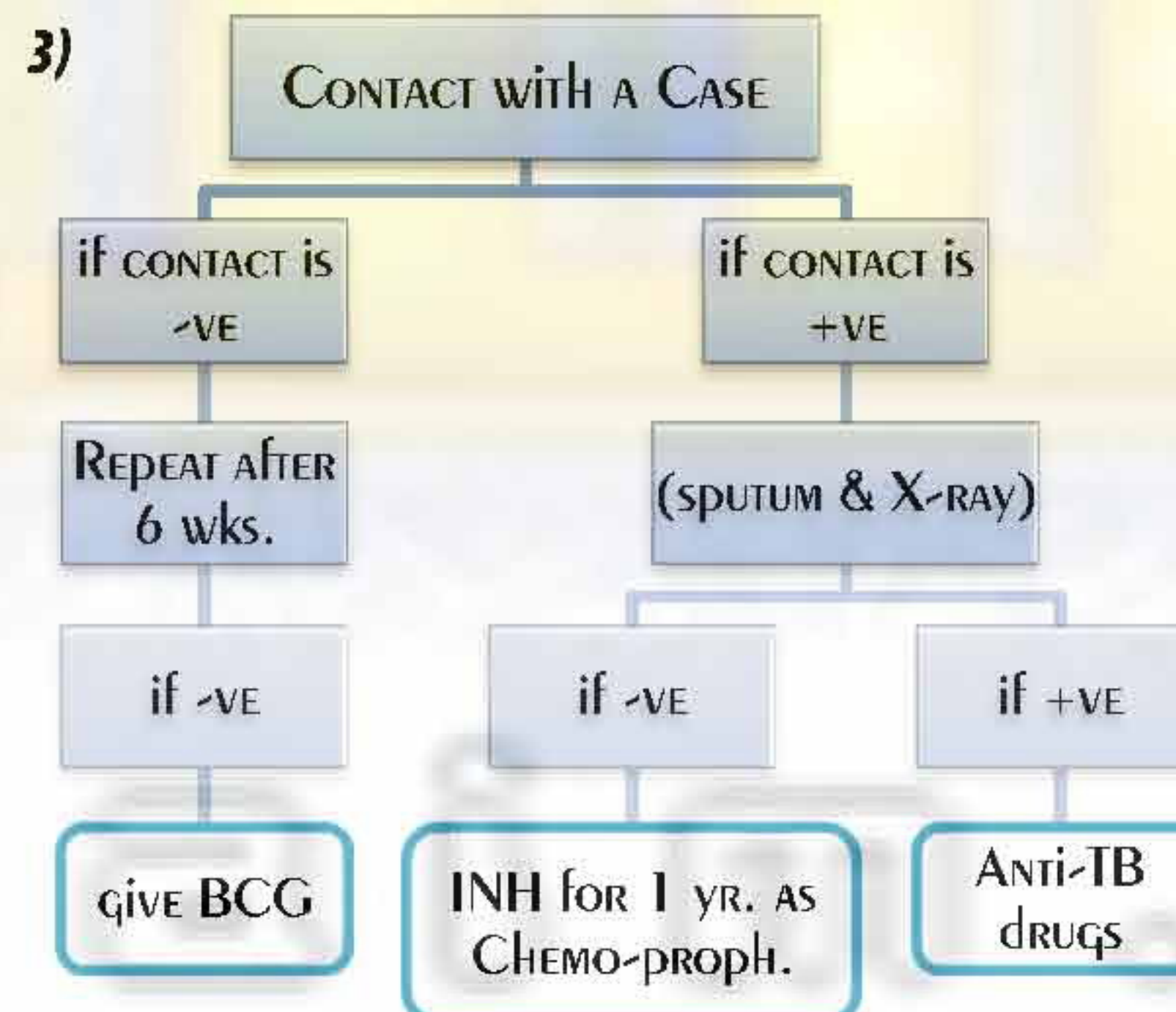
5) **+ve TUBERCULIN TEST: (CMI)**

- ID inj. of PPD of the bacilli in atypical types of M. TB.
- If +ve test $\rightarrow$ red palpable induration. (1 cm.)
- Good -ve test $\rightarrow$ Chest trouble & -ve test $\Rightarrow$ repeat after 6 wks. $\Rightarrow$ Mostly not TB.

VALUES OF TUBERCULIN TEST

1) +ve $\rightarrow$ infection / vaccination.

2) +ve IN ATYPICAL M. TB $\rightarrow$ diff. by specific PPD for avium.



CAUSES OF FALSE -ve TUBERCULIN

1) < 6 wks (pre-immune period)

2) **Immuno-comp. (anergy)**

- HIV Cytotoxic
- Steroids Sarcoidosis.
- Viral inf. "measles"

3) **Bad technique.**

4) **Miliary T.B**

False +ve T.B. $\rightarrow$ Atypical MB

TREATMENT OF TB

MEDICAL TTT.:

1) **BED REST - ISOLATION - GOOD NUTRITION.**

2) **DRUGS RULES**

- a) *Long course* → avoid relapse.
- b) *Combinations* → avoid resistance.

SURGICAL: (OBSOLETE)

*Artificial pneumothorax
if failed.... Lobectomy*

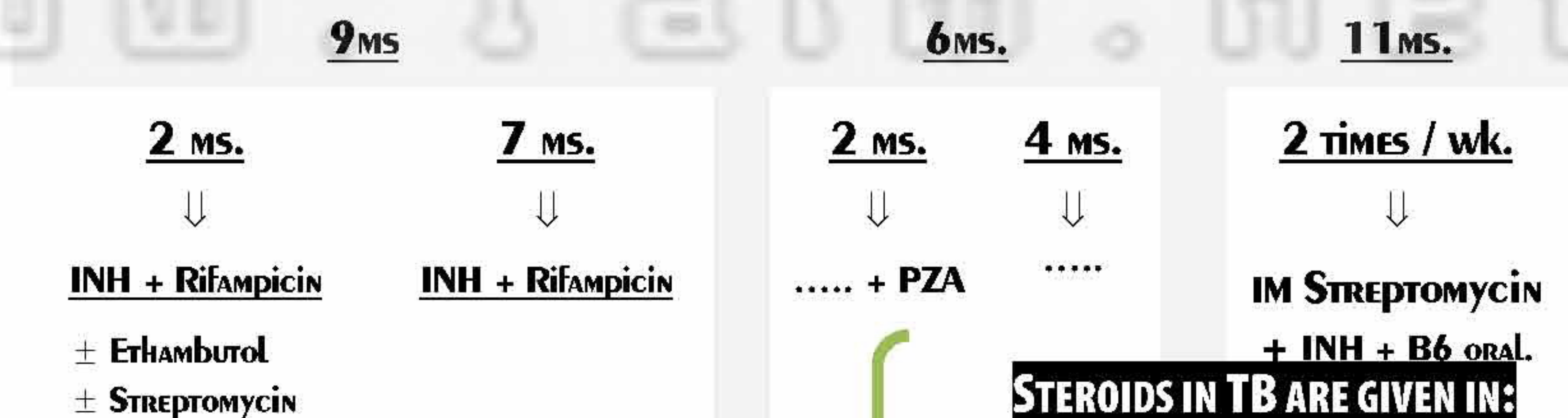
DRUGS: I P R E S

- **INH** 200-300 mg/d (Hepato-toxic – PN & ON) ⇒ **give B₆**
- **Pyrazinamid** (Hepatitis - gout)
- **Rifampicin** 450-600 mg/d (Hepato-toxic – red disc. of urine –flu like, GN)
- **Ethambutol** (ON) ⇒ Fundus exam.
- **Streptomycin** 1gm/d IM (Oto-toxicity → irreversible)

CHEMO-PROPHYLAXIS of TB:

- **INH** for 1 yr Contact *recently* tuberculin +ve.
- **INH + Rifampicin** for 3ms. Immune-supp. (eg. Transplanted pt. regardless tuberculin results!)
- **INH + Rifampicin + PZA** for 2ms. Infants of highly infectious mothers. (treated for 6wks)

DRUG PROTOCOL: (9 / 6 / 11 MS.)



STERIODS IN TB ARE GIVEN IN:

- 1) **MILIARY TB** → s. toxemia → Adrenal insuff.
- 2) **SEROUS MEMBRANE** affection to (-) fibrosis as in Meninges.
- 3) **ADDISON** ⇒ acts as HRT.

MONITOR RESPONSE:

- 1) **Clinical** ⇒ ↓ Fever within 2 wks.
- 2) **X-Ray** ⇒ with in 1 m.
- 3) **Sputum** ⇒ -ve after 2 ms. “most reliable”

BCG Vaccine = 0.1 ml ID at the junction bet. Upper & middle 1/3 of the upper arm → protection for 7 ys.

S/E OF DRUGS IN

- 1) **LIVER CIRRHOSIS** $\Rightarrow$ No Rifampicin.
- 2) **CRF** $\Rightarrow$ give anti-TB 3ady.
- 3) **PREGNANT** $\Rightarrow$ No strepto-mycin (deafness) / PZA (teratogenic)

THERAPEUTIC TEST E OUT DIAGNOSIS

"give anti-TB drugs $\Rightarrow$ if improved after 2wks. $\Rightarrow$ continue ttt."

DD of Generalized LN++		
1- leukaemia,	4- AIDS	7- Brucellosis
2- lymphoma	5- EBV	
3- Sarcoidosis	6- TB	8- CMV

Complications of TB:

- 1) **EMPHYEMA OR PYO-PNEUMO-THORAX** *due to rupture of TB cavity in the pleural space.*
- 2) **TB laryngitis.**
- 3) **RF** *with extensive pulmonary destruction and fibrosis.*
- 4) **PULMONARY fibrosis.**
- 5) **CONSTRUCTIVE pericarditis.**

EXTRA-PULMONARY TB OR DISSEMINATED

- **ADRENAL** $\rightarrow$ *Addison disease.*
- **BRAIN** $\rightarrow$ *Meningitis with cranial nerve palsies.*
- **PERITONEUM** $\rightarrow$ *TB peritonitis $\rightarrow$ Ascites.*
- **TB ENTRITIS** $\rightarrow$ *swallowing heavily infected sputum.*
- **BONE** $\rightarrow$ *Osteomyelitis and pott's disease.*
- **BONE MARROW** $\rightarrow$ *Anemia and thrombocytopenia.*
- **GENITOURINARY T.B:**
 - a) *T.B. kidney $\rightarrow$ sterile pyuria - T.B Salpingitis or endometritis $\rightarrow$ infertility.*
 - b) *T.B. epididymitis.*
- **SIDE EFFECTS OF ANTI TB drugs.**

RESPIRATORY FAILURE = RF

"↓ respiratory performance in normal ATM. O_2 and absence of A- V shunts $\Rightarrow$ hypoxia $\pm$ hyper-capnia."

$P O_2 < 60$ (normally around 100 mm Hg)
 $P CO_2 > 50$ or > 55 (normally around 40)

TYPE I	TYPE II
hypoxic NORMOCAPNIC	hypoxic hyperCAPNIC
Diffusion defect $\rightarrow$ $\downarrow O_2$ + Normal OR $\downarrow CO_2$ or hyper-ventilation.	VENTILATION defect $\rightarrow$ $\downarrow O_2$ AND $\uparrow CO_2$
CAUSES	
ACUTE ACUTE PE – ARDS PNEUMONIA CHRONIC Emphysema (pure) IPE. Lymphangitis CARCINOMATOSA	OBSTRUCTIVE ($\downarrow FEV_1$) ACUTE ACUTE SEVERE ASTHMA. CHRONIC COPD RESTRICTIVE ($\downarrow VC$) ACUTE Ms. paralysis CHRONIC IPE Kypho-scoliosis.
TREATMENT OF RF: of the CAUSE + O_2 THERAPY+ Ventilator if all failed.	
$\uparrow O_2$ CONCENTRATION	$\downarrow O_2$ CONC. TO PRESERVE THE hypoxic drive THROUGH $\oplus$ of periph. Chemo-Rs. - DOXAPRAM $\rightarrow$ RC $\oplus$.

"Chronic bronchitis + Emphysema $\Rightarrow$ Ventilation - Diffusion - perfusion defect
 $\rightarrow \downarrow O_2 + \uparrow CO_2$ (Type II) RF.

CL./P: Lab DIAGNOSIS....ACUTE / CHRONIC

EXACERBATION OF COPD

- ◆ Retention of secretions
- ◆ C.N.S depression
- ◆ BS
- Chest infection
pneumo-thorax.
- Pulmonary embolism
- HF

CORE PULMONALE

"RV⁺⁺ ± RVF due to P⁺⁺"

"hypoxia → pulm. VC → P⁺⁺ → RV⁺⁺ ± RVF"

Causes:

1) PARENCHYMAL LUNG disease:

- COPD. (*chronic bronchitis - emphysema*)
- IPF.

2) VASCULAR LUNG disease:

- Core pulmonale.
- Thromboembolic P++ (*subacute core Pulmonale*)

3) CHEST WALL disease EG. Kyphoscoliosis

Cl./P

1) CAUSE

2) P⁺⁺ → RV⁺⁺. (*see cardiomegaly*)

3) RVF → S.V.C (*see heart failure*).

INVESTIGATIONS

- ECG → normal with emphysema or ↓ voltage.
- Echo → more accurate.

TREATMENT

1) OF THE CAUSE.

2) of RVF → 4 Ds

3) of LUNG → Aminophylline + O₂ therapy.

4) CCB → Diltiazem "high dose" → ↓ P⁺⁺

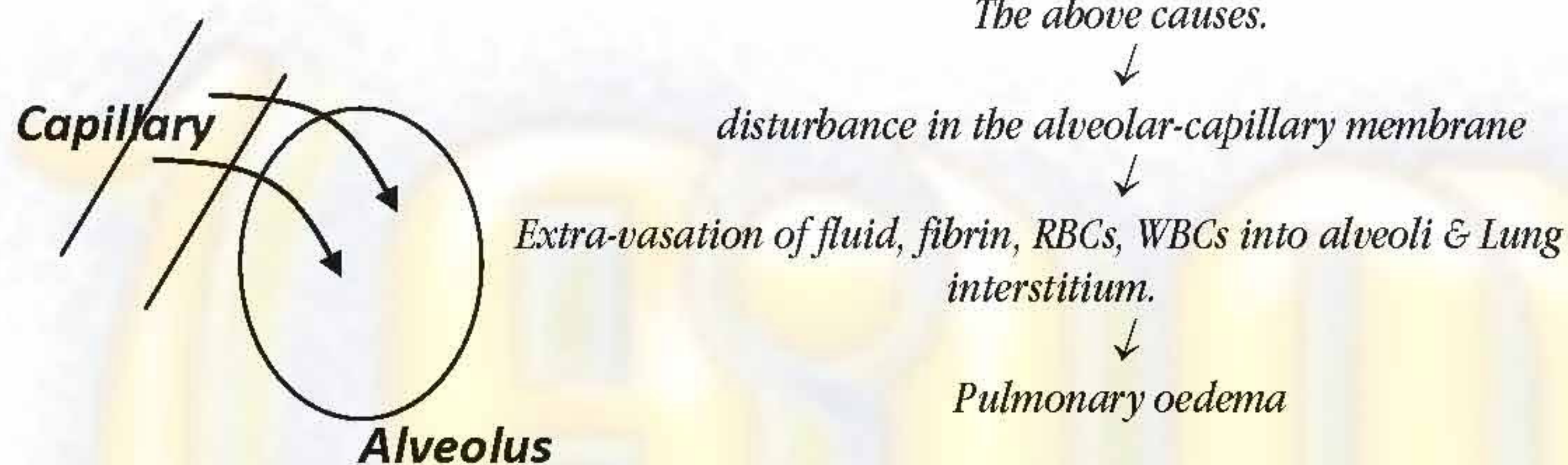
Adult Respiratory Distress \$ (ARDS)

“NCPE → diffusion defect → Type I RF”

➤ Causes

- 1) inhalation of an irritant gases
- 2) Gm -ve septicemia.
- 3) Fat, air, amniotic fluid embolisms.
- 4) Pneumocystic carinii, viral pneumonia
- 5) Uremia - Pancreatitis.
- 6) Opiates Over dose eg. Heroin.
- 7) HS. eg. SLE – Good Pasture's \$.
- 8) DIC

➤ Pathology



➤ Cl./P with in 24-28 hrs = Acute Tachypnea – Dyspnea.

- Cause
- Diffuse lung crepitations.
- Type I RF.

➤ INVESTIGATIONS

- 1) X-ray → Bilateral. Pulmonary Infiltration.
- 2) $O_2 < 50$
- 3) Echo → Normal heart (normal ejection fraction of the Left ventricle)

➤ TREATMENT hypoxia that doesn't respond to ventilator or ttt.)

- 1) Cause
- 2) O_2 . ventilators + PEEP
- 3) Steroids → improve capillaiy permeability!?
- 4) Diuretics !?

➤ Complications:

- 1) pneumo-tbx dt ventilators.
- 2) 2^o bacterial inf. From central line.

HISTIOCYTOSIS X

(EOSINOPHILIC GRANULOMA OF THE LUNG)

Def. Systemic disorders ccc. by infiltration of t. by non malignant histiocytes and eosinophils with fibrosis.
it may be localized to bone or lung or disseminated.

Pathology: Proliferating histiocytes show cytoplasmic inclusions → x bodies.

C/P

- Cough
- D.I.
- dyspnea
- Exophthalmous
- fever

Investigation

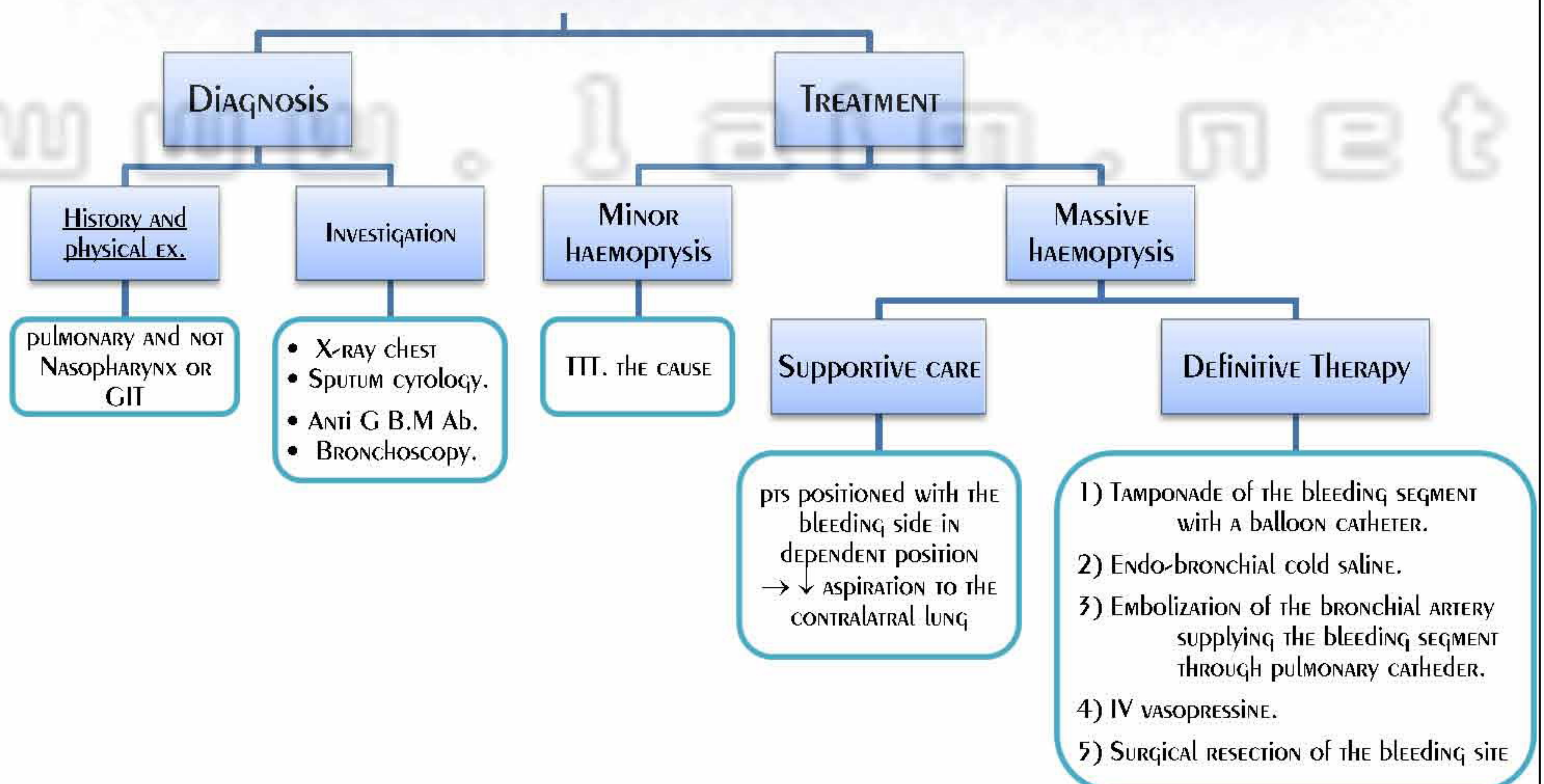
- Honey comp, restrictive pulmonary fibrosis, biopsy.
- Also bronchial lavage → X bodies.
- Bone X ray → bone defect.

Treatment → **STERoids** + **Radiotherapy**

NB Eosinophilic granuloma of lung and bone including:

- Letterer siwe disease
- Hand Schuller Chrichtian \$.

MANAGEMENT OF HAEMOPTYSIS



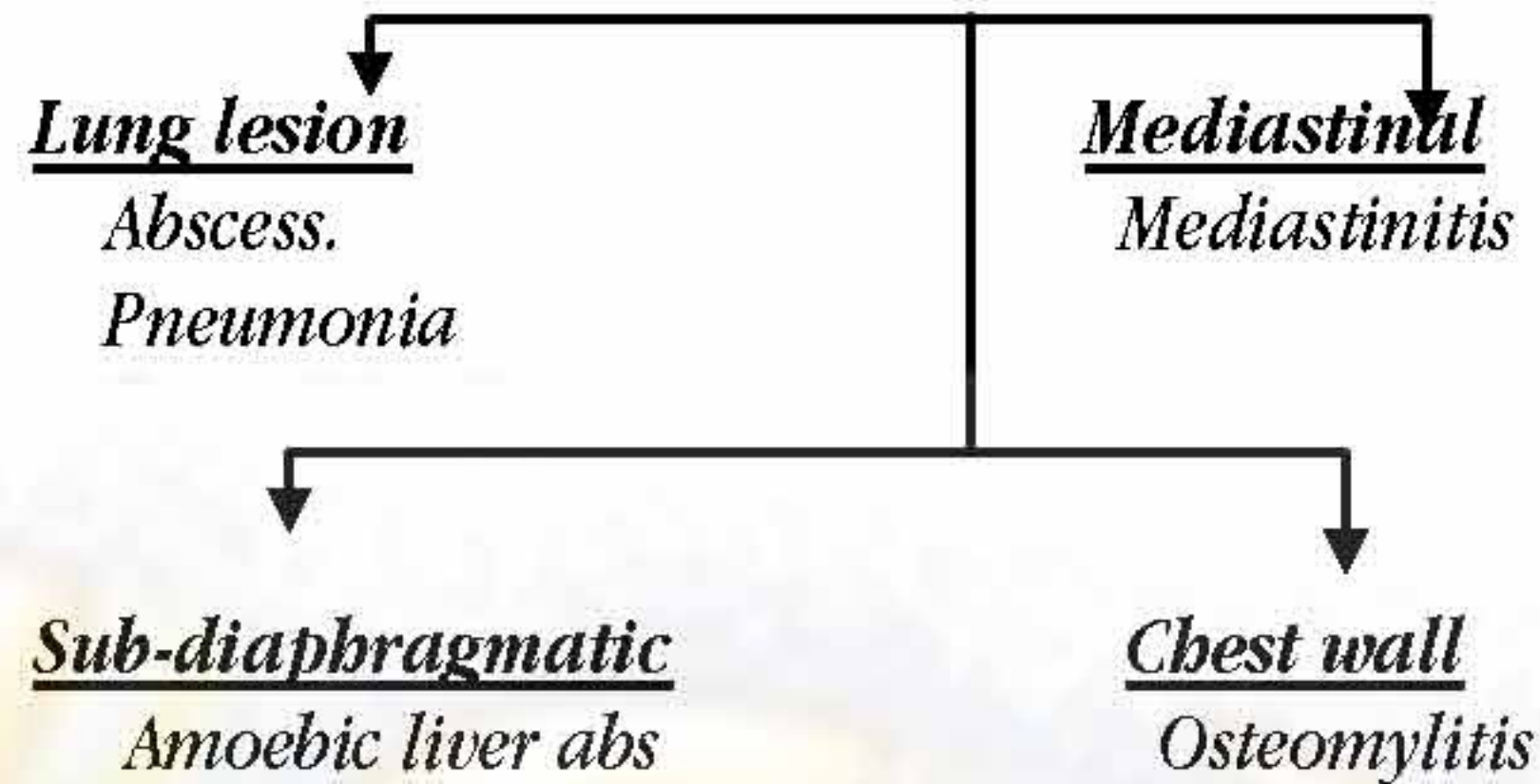
PLEURISY

"It's not a Disease but it's a sign of underlying disease"

pleurisy + Chest pain $\Rightarrow$ ICU for fine invest. (Suspect pulm. Infarction)

CAUSES

- 1) 1st $\rightarrow$ Viral, T.B., malignancy.
- 2) 2nd $\rightarrow$ FMF - SLE - RA.
- 3) Extension from nearby structures



Cl./P (pleurisy is not a disease but sign of a disease)

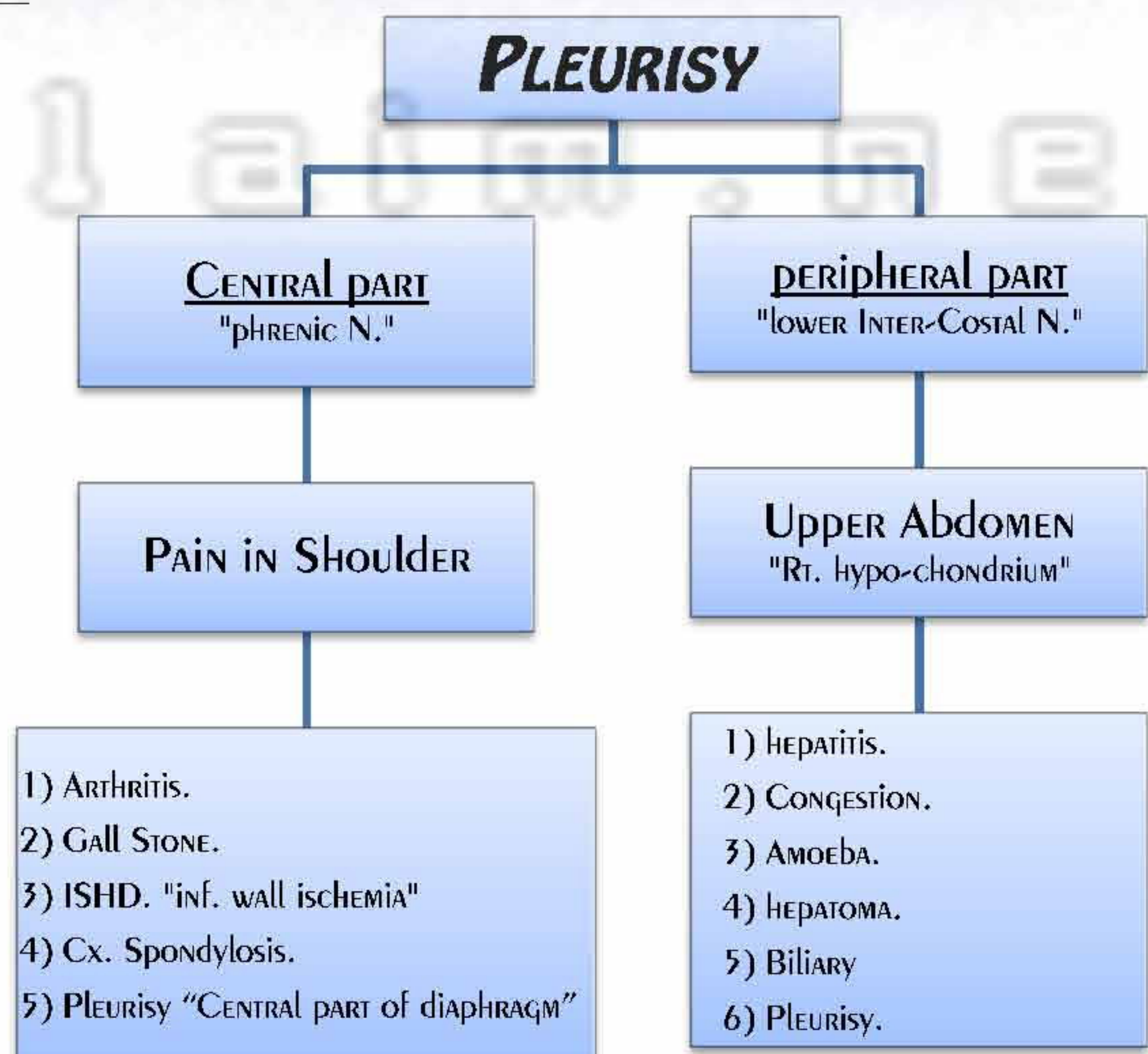
- 1) **Chest pain** to Axilla stitching
localized
 $\uparrow$ with cough & inspiration
- 2) **False dyspnea.** (due to pleuritic pain)
- 3) **Pleural. rub** or pleura-pericardial rub.

INVESTIGATIONS:

- pulm. Infarction $\rightarrow$ Lung Scan.
- pneumonia $\rightarrow$ X-ray.
- SLE $\rightarrow$ Markers.

TREATMENT

- NSAID for pain.
- Cause.



Important Notes in Respiratory

p. 20	SYSTEMIC D presented e BS:
	1) WURG STRAUSS VASCULITIS. 2) CARCINOID S.
	Dyspnea + Wheezy Chest:
	1) BA. 2) CARDIAC ASTHMA. 3) EOSINOPHILIC PNEUMONIA. (ASCARIS / ANKYLOSTOMA)
	PAROXYSMAL ATTACK of Dyspnea
	1) BA. 2) CARDIAC ASTHMA. 3) EXTRINSIC ALLERGIC ALVEOLITIS. → NO BS → NO WHEEZY CHEST.
	WHEEZY CHEST + HEMOPTYSIS
	1) CHURG-STRAUSS VASCULITIS. 2) CARDIAC ASTHMA. (PVC) 3) BRONCHIECTASIS.
p. 32	TENSION PNEUMOTHORAX
	➤ CAUSE: Trauma - Mechanical Ventilation. ➤ CL/P: Chest pain + Shock. ➤ TTT.: 1) <i>Cannula in 2nd space MCL. to change Tension to Open pneumo-thorax.</i> 2) <i>IC tube under water seal.</i>
	PNEUM-MEDIASTINUM = MEDIASTINAL EMPHYSEMA
	CAUSE Trauma / Rupture trachea or oesophagus. C/P Chest pain + Cardiac compression. SIGNS Crunching sound with heart beats (Hamman sign)

	hydro & Pyo-pNEUMOTHORAX
	➤ Etiology: 1) Introduction of air during aspiration of effusion. 2) Empyema with Broncho-Pleural fistula. 3) Rupture of TB cavity or lung Abscess into pleura. ➤ CL/P → as Pl. Effusion + (+ve shifting dullness +ve succussion splash) ➤ Invest. → Air-fluid level.(effusion rising to the Axilla) ➤ TTT. → as Pl effusion. (Aspiration + IC tube)
p.38	RECURRENT PNEUMONIA = Dyspnea + Cough + Expectoration + Chest pain. "pleurisy"
	1) BRONCHIAL OBST. (BRONCHIAL ADENOMA / BR. CARCINOMA) 2) CHRONIC LUNG D. (COPD – BRONCHIECTASIS) 3) RECURRENT ASPIRATION (Alcoholics – Adicts – Epileptics) 4) IMMUNO-deficiency.
p. 81	CHEST + DI
	1) Sarcoidosis. 2) HISTIO-cytosis X.
	DIAPHRAGMATIC PARALYSIS
	CAUSES 1) TRAUMA of PHRENIC NERVE (surgery) 2) INFILTRATION → of phrenic Nerve. By malignancy 3) Idiopathic 4) Viral C/P → bilateral → dyspnea. • Paradoxical Abdominal movement. • Reversed tidal Percussion. • unilateral → no dyspnea TTT. → Cause + ventilation if bilateral
p. 61	HAMMAN Rich \$ = IPD + UNKNOWN etiology
	• INVEST. X-RAY → miliary shadow RFT → O₂ ↓ (diffusion defect) • TREATMENT: STEROIDS & Cytotoxic drugs
	post-Operative pulmonary Complication
	1) ASPIRATION PNEUMONIA. 2) ASPIRATION LUNG ABSCESS. 3) pulmonary embolism. 4) Collapse. 5) ARDS ↑↑O₂ toxicity – Sepsis.

HYPER-VENTILATION \$

“↑rate or depth of breathing → washout of CO_2 → ↓ $\text{PCO}_2 < 37 \text{ mmHg}$ → alkalosis if prolonged → Tetany”

CAUSES:

- (1) Hypoxia → High altitude.
 - (2) Pulmonary embolism
 - (3) Heart failure.
 - (4) Metabolic Acidosis.
 - (5) Psychogenic.
 - (6) Drug-induced: Salicylates • Aminophylline • B_2 agonists • Progesterone
 - (7) Miscellaneous: Fever • pain • pregnancy.
- Bronchial asthma
 - Hypotension.
 - Hepatic failure.
 - CNS infections or tumors.

C/P: **Unexplained hyperventilation are if recurrent pulmonary thrombo-embolism.**

- Invest.: of the cause + ABG for hypocapnea.
- Treatment: of the cause. Inhalation of a low CO_2 concentration
e.g the patient is asked to breathe into a closed paper bag.